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DIAGNOSTIC COMORBIDITY AND CIRCUMSTANTIAL RISKS IN PSYCHOTIC OFFENDERS:

An exploratory study

Kris Goethals



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COVER ART

"Dulle Griet" by Pieter Bruegel (1562)

Museum Mayer van den Bergh, Antwerp, Belgium

Panse (1967), a professor of psychiatry, published a number of medical observations. The figure Dulle Griet displays the characteristics of a schizophrenic woman: leptosomatic, a long thin nose, short chin, empty gaze, and uncared for clothing and hairdo. Her behaviour is in agreement with these characteristics: she has put on ineffective protection and clings to her belongings, both valueless and valuable, which is evidence of a pathological concern for personal property. "Of course, Bruegel was still unable to recognise that his model was 'schizophrenic'. He probably failed to recognise a mental illness in her at all, but thought that she was bewitched by evil powers, in agreement with the general spirit of the times." (p. 10). It should be pointed out in passing that another diagnosis (that of Torrilhon) includes the phrase "psychose hallucinatoire chronique courante chez les femmes après la ménopause" [chronic hallucinatory psychosis in women after the menopause]. From: Marijnissen, R.H.(1988). Bruegel. Het volledige oeuvre. [Bruegel. The complete works]. Mercatorfonds, Antwerp.

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DIAGNOSTIC COMORBIDITY AND CIRCUMSTANTIAL RISKS IN PSYCHOTIC OFFENDERS:

An exploratory study

Een wetenschappelijke proeve op het gebied van de
Medische Wetenschappen

Proefschrift

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Preface

The heart of forensic work is to be able to handle offenders with a severe antisocial personality disorder and/or psychopathy, alone or in combination with a psychosis, and to be able to teach them alternative forms of behaviour. This requires interventions designed to reduce aggressive behaviour, improve empathy, and bring about a sense of responsibility for his own acts together with prosocial skills. This demands a different attitude from forensic professionals than that of professionals in general psychiatry. A psychiatrist who is convinced that adequate antipsychotic therapy and social skills training are sufficient for the treatment of forensic psychotic patients will quickly become demotivated, partly as a result of the frustrated therapeutic team. In my opinion, it is difficult to pay sufficient attention to the heart of forensic work, i.e. the antisocial characteristics of offenders. During the past years, I have seen various colleagues, as well as professionals from other disciplines, say farewell to forensic psychiatry within a year because they 'could not find fulfilment' in our sector.

This finding was the stimulus to study the forensic psychotic patient in more detail. In particular, I wanted first of all to compare psychotic TBS-detainees with psychotic patients in general psychiatry, also with regard to their prior history, and secondly I wanted to examine the specific aspects of psychotic TBS-detainees, such as the comorbidity with other disorders and the complex social context.

In this thesis, the diagnostic comorbidity and environmental risk factors in psychotic TBS-detainees will be investigated by means of exploratory studies.

Outline of this thesis

This thesis consists of 10 chapters: a chapter for the general introduction, a pilot study, two review articles, five empirical articles, and a final chapter with the general conclusions and recommendations.

Chapter I deals first of all with the literature on the relationship between a psychotic disorder and serious violent behaviour, with a separate section on the Dutch investigators that have done research on this subject. Next, we describe the general goals of this thesis and the question that we hope to answer, and finally we describe the Dutch TBS-population (offenders detained under the Dutch Entrustment Act).

Chapter II describes the pilot study and devotes attention to the first considerations and a discussion that have arisen on the basis of the results of the study. The primary goal of the pilot study was to evaluate the usefulness of the methodology in the study design and to amend it if necessary.

Chapter III is a review of the literature between 1990 and 2006 on the diagnostic comorbidity in psychotic offenders and their prior criminal history. A general overview of the relationship between a psychotic disorder and serious violent behaviour, and the comorbidity with substance abuse, a personality disorder and/or psychopathy are discussed in this chapter.

Chapter IV consists of the second review article on the environmental risk factors in psychotic offenders and their prior criminal history. The following subjects are dealt with in this connection: the temporal relationship between a psychotic disorder and a criminal offence, prior use of psychiatric services, psychosocial and environmental stress factors, the victims of psychotic offenders, and behaviour problems in childhood and adolescence.

Chapters V through IX are the empirical chapters, in which a total study population of 137 patients was investigated.

Chapter V reports an exploratory study of the behaviour problems during childhood and adolescence in psychotic offenders. This study investigated whether the Child

Behavior Checklist (CBCL) can be used in a forensic population. Externalising behaviour, especially, is seen more often in psychotic offenders with a personality disorder and personality disordered offenders than in psychotic patients or offenders without a personality disorder.

The victims of psychotic offenders are investigated in **Chapter VI**. Moreover, the GAF-scores (Global Assessment of Functioning) are compared in psychotic and personality disordered offenders and psychotic patients in general psychiatry. Finally, the number and nature of the psychosocial and environmental problems in psychotic versus personality disordered offenders are charted.

The temporal relationship between a psychotic disorder and criminality is studied in **Chapter VII**. The effects of psychopathy and substance abuse are also considered here. Finally, the DUP (duration of untreated psychosis) in psychotic offenders is compared with that in psychotic patients that have not committed an offence.

Chapter VIII deals with an important and frequently occurring comorbidity in delinquent patients: substance abuse. Early and late starters are compared here with reference to substance abuse. Subsequently, psychotic versus personality disordered offenders are compared with reference to whether or not they were intoxicated at the time of the index offence and whether or not they had a substance-related disorder at the time of the index offence.

Chapter IX, the last empirical chapter, describes the symptoms of the psychosis, especially the positive and negative symptoms and the cognitive deterioration. Subsequently, the groups of psychotic TBS-detainees and psychotic patients from general psychiatry are compared with reference to various aspects of psychiatric care.

Chapter X presents the general conclusions, the discussion of the methodology, and the recommendations for clinical practice and future research.



Chapter I

General Introduction

I.1 Some data from the literature

Since the 1980s, many studies have been performed in order to clarify the association between mental disorders and violent behaviour. This was made possible by the improved techniques for scientific population studies, together with the ever increasing demand from society for ways to prevent and control delinquent behaviour. Professionals in mental healthcare were more and more often being held responsible for the behaviour of the mentally disturbed individuals that they were treating, some of whom turned out to be violent. Especially the possibility of violent behaviour on the part of psychotic patients became a point for discussion. It turned out that a large variety of personal, situational and environmental factors play a role here (Monahan & Steadman, 1994). Some patients with psychosis are less violent than the average of the population, while others are significantly more violent. One of the questions raised was whether violent behaviour in psychotic individuals is a symptom of the disorder and connected with its etiopathogenesis, or the psychosis is preceded by violent behaviour that was already apparent, for example, in childhood and adolescence. Is violent behaviour a product of the psychosis or did it exist earlier, and if so, is it precipitated earlier by the psychosis or does it develop independently?

In the literature on the subject of mental disorders and violence, we find mainly three types of study:

1. studies of unselected birth cohorts in the community that make it possible to compare the violent behaviour of individuals with and without mental disorders (see, for example, Hodgins et al., 1996);
2. studies of the prevalence of Major Mental Disorders (MMD) among convicted offenders in prison (such as Taylor & Gunn, 1984a; Taylor & Gunn, 1984b). Major Mental Disorders (MMD) include: schizophrenia, major affective disorders (also major depression), paranoid states, and other psychoses;
3. follow-up studies of psychiatric patients after their return to society (for example, Monahan & Steadman, 2001).

This distinction between the three types is important because the association between mental disorders and delinquency will be stronger in the last two types than in studies carried out in the community. Mentally disturbed delinquents are

over-represented in psychiatric hospitals and prisons due to the selective effect of the frequently involuntary admissions.

I.1.1 Relationship between violence and a psychotic disorder

Over the years there has been a clear shift in the relationship found between violent behaviour and psychotic disorders. Between 1970 and 1985, no association was found (Häfner & Böker, 1982; Monahan & Steadman, 1983). Taylor (1984) also reported that - in a prison population - serious personal and life-threatening violence (with weapons) was committed much more often by mentally normal individuals. She pointed out that almost 50% of all the schizophrenic patients also had a history of depression, substance abuse, and head trauma.

Starting in the 1990s, however, an association was found. In Linqvist et al. (1990), the criminal behaviour of patients with schizophrenia was compared with that in the general population. The incidence of crime among the male patients was almost the same as in the general population, but among the female patients the incidence was twice as high as in the general female population. The number of violent offences, however, was four times as high, although almost all of minor severity. Swanson (1990) found increased violent behaviour among persons with one or more psychiatric disorders after controlling for gender, age and socioeconomic status. Link et al. (1994) concluded that the association between violence and psychotic symptoms was more likely when the psychotic symptoms caused the patient to feel threatened or after the intrusion of thoughts that caused him or her to lose self control. Hodgins (1993) urged that a distinction be made between two groups of offenders with Major Mental Disorders: early starters who commit an offence before the onset of psychiatric symptoms, and late starters who commit an offence after the mental disorder has already become manifest. The reason for this distinction was the need to describe two independent courses of development so that delinquency could be prevented at an early stage. Substance abuse during puberty, especially, increased the chance of delinquent behaviour in patients with Major Mental Disorders. In the results from a Danish birth cohort (Hodgins, 1996), patients with a MMD had a higher risk of committing violent than non-violent offences, they committed more offences, and all types of offences were represented.

A large-scale study, the MacArthur Violence Risk Assessment Study, was carried out by Monahan & Steadman (2001). In this study, hospitalised patients were followed after their discharge from the hospital, and 134 risk factors were examined from four conceptual domains: dispositional or personal factors (such as age), historical or developmental factors (such as abuse during childhood), contextual or situational factors (such as the social network), and clinical or symptomatic factors (such as delusions). Violence in people with a mental disorder seemed to be the result, in part, of the poor, criminal neighbourhood in which they often live. A diagnosis of MMD was associated with a lower incidence of violence than the diagnosis of another disorder, especially a personality or adjustment disorder. Within the MMD group, schizophrenia was associated with a lower incidence of violence than a diagnosis of depression or a bipolar disorder. Patients with TCO-delusions (threat/control override: the pathological conviction that other people wish to injure them or that certain forces are in control of their minds) were significantly less violent in the follow-up period than patients without such delusions. Patients that heard voices ordering them to commit violent acts against other people were significantly more violent.

According to Tuinier (1989), there was no connection between the disorder and the offence, and the treatment of the psychiatric disorder had no measurable effect on the recurrence rate in general, nor on the frequency of recurrence of an aggressive offence. Van Panhuis (1997) found that attempted and threatened violence were over-represented among psychotic TBS-detainees (offenders detained under the Dutch Entrustment Act). Most patients were psychotic at the time of the offence and a violent component was usually present. An important finding, however, was that previous violence and abuse of psychoactive substances were more reliable predictors of violent offences than the psychiatric diagnosis (Canton, 2004). The comparison of three annual cohorts of detainees that had been committed to TBS in different periods also revealed significantly more attempted and threatened violence among psychotic offenders and a higher percentage of 'successful' capital crimes among offenders with a personality disorder (van Panhuis & Dingemans, 2000).

Nijman et al. (2003) compared the prior history and criminal behaviour of personality disordered and psychotic offenders. Psychotic offenders generally knew their

victims quite well before the offence. In addition, within the psychotic group, the authors looked at the differences between those that had committed a fatal versus a non-fatal offence. Those that had committed fatal offences had a relatively short criminal record and a late start of criminal activities. Moreover, addiction to alcohol or drugs at the time of the offence was strikingly rare.

From the above, we can conclude that the interpretation of the results of the studies reviewed above is limited by the inclusion in some studies of non-psychotic offenders and the failure to take account of a comorbid personality disorder accompanying a psychotic disorder.

1.1.2 Comorbidity with a personality disorder and a substance-related disorder

Moran (2003) urged that offenders with a psychosis should be examined for the presence of a comorbid personality disorder. In more than one-fourth of his study population, the psychotic disorder was accompanied by a personality disorder. Offenders with a psychosis and comorbid personality disorder committed significantly more violent offences during the two years following discharge from the hospital. In her article on schizophrenia and antisocial personality disorder (Hodgins, 1996), male schizophrenic offenders with a secondary diagnosis of antisocial personality disorder had had more juvenile arrests and more antisocial behaviour during childhood than those without the secondary diagnosis.

Quinsey et al. (1998) were the first to study the association between psychopathy and schizophrenia. They found a low incidence of comorbidity between psychopathy and schizophrenia. Certain items were seen especially infrequently among schizophrenic offenders compared to non-schizophrenic offenders, namely: juvenile delinquency, early behaviour problems, superficial charm, and manipulative behaviour. There were no items from the PCL-R that correlated significantly positively with a diagnosis of schizophrenia. An explanation was found in the differential involvement of the serotonin neurotransmitter system: the result of serotonin hyperactivity in schizophrenia and serotonin deficiency in psychopathy is that the two diagnoses rarely occur together. Alcohol abuse was also seen less frequently among schizophrenic offenders than among other people in their study. It should be pointed out that their population consisted of high-risk individuals

(detainees for a serious violent crime) that were mainly personality disordered and not schizophrenic.

In their study, Tengström et al. (2001) used the early- versus the late-starter offender typology among offenders with schizophrenia to describe courses of development with the following significant variables: substance abuse by the parents, conduct disorder during childhood, and low grades at school. Of those that scored positively on the three variables, 88% were early starters. Of those that scored negatively, 89% were late starters. The late starters were mainly those without a comorbid personality disorder, while the early starters were mainly those with a personality disorder. Among offenders with schizophrenia that had been violent, there was an association with substance abuse and psychopathy (Tengström et al., 2000). When psychopathy was present, then comorbid substance abuse did not lead to a higher level of criminal activity. Psychopathy, as measured by Hare's PCL-R (Hare, 1991), was an important predictor of recurrent violence among schizophrenic offenders, especially in the long term (starting five years after the offence). As predictors for the short term, the symptoms of the disease (such as delusions) were more important than psychopathy.

1.1.3 Nature of the disorder

Nolan et al. (2003) described aggressive assaults by hospitalised patients with a psychosis. With the aid of a factor analysis, they described the 'phenotypical heterogeneity' of the aggressive attackers. Approximately one-fifth of the aggressive assaults were accompanied by positive psychotic symptoms (mainly delusions and hallucinations with a threatening component, less often commanding hallucinations) (factor 1). The second cause of an aggressive assault was psychotic confusion, cognitive disorganisation, and the inability to interpret environmental stimuli correctly (factor 2). The third cause (factor 3), finally, was aggression as a result of psychopathy or related to disordered impulse control. Factors 2 and 3 taken together accounted for approximately four-fifth of the assaults. Aggression motivated by psychopathy was associated with planning, predatory gain, and a lack of guilt. Aggression related to disordered impulse control could be ascribed to an immediately preceding environmental stimulus, such as an order to do something, a request that had to be fulfilled, or some other immediate provocation by the victim. Prior planning eliminated poor impulse control as a causative factor.

The structure of the symptoms of schizophrenia has always been presented in two dimensions: the positive symptoms and the negative ones. In the early 1990s this turned out to be insufficient. Some symptoms, such as certain forms of thought disorder, could be classified into one of the two categories only with difficulty (Arndt et al., 1991). Liddle (1987) and later Malla (1993) pleaded for three syndromes: psychomotor poverty, disorganisation, and reality distortion. Malla based this model on a factor analysis of long-term hospitalised patients with schizophrenia. In the syndromes psychomotor poverty and disorganisation, a coupling can be made with the first two factors defined by Nolan et al., namely, the positive symptoms of the disease and cognitive disorganisation as the underlying motives for aggressive assaults.

Taylor (1993) reported that the most important factor in psychotic offenders was 'being compelled' by delusions, rather than the diagnosis 'psychosis' as such. Moreover, psychotic offenders assaulted known persons more often than strangers, even though they did threaten their victims as if they were strangers in connection with the negative symptoms of the disease (i.e., emotional poverty and less social interaction with the victim). Earlier, the same author (Taylor, 1985) had already established that delusions are much more important than hallucinations. A seemingly unmotivated offence was often shown later, by further investigation, to be due to delusions. In the case of violent offences, panic had a disastrous effect in both psychotic and non-psychotic offenders. In case of non-violent offences committed by offenders with a psychosis, material gain was a very important factor.

1.1.4 Temporal relationship between schizophrenia and violence

Munkner (2003) studied patients with schizophrenia that were born in 1963 or later with regard to the coupling between a psychiatric history and criminal acts. Almost 60% of all the violent offenders had committed their first violent offence before their first contact with psychiatry, almost one-fourth committed their first violent offence between their first contact with psychiatry and the diagnosis of schizophrenia, and one-fifth committed their first violent offence after the diagnosis of schizophrenia. Earlier, Taylor (1994) had established the critical times for violence in hospitalised patients with a psychosis. These critical times were: immediately on admission, after having been on the ward for a few weeks (the so-called 'honeymoon period'),

in case of anxiety regarding release and the threatened loss of the protective environment, and halfway through the period of hospitalisation in case of therapy-resistant patients on whom the staff exerts increased pressure as a result of frustration over the lack of progress. Ultimately, the patient then also becomes frustrated by the continuing limitations and confinement.

1.2 Aims of this thesis and presentation of the research questions

The general aims of this thesis are:

- (a) to examine the relationship between a psychotic disorder and severe violent behaviour leading to confinement in the Dutch TBS-system;
- (b) to explore the differences and similarities between psychotic patients in general psychiatry and psychotic offenders, with special attention to their history;
- (c) to examine the role of comorbidity, such as a personality disorder, psychopathy or substance abuse, in psychotic offenders;
- (d) to examine the circumstantial risks in psychotic offenders, such as early behaviour problems, psychosocial problems, the victims, the temporal relationship between a psychotic disorder and a criminal offence, and prior use of psychiatric services.

In particular, we shall try to find answers to the following questions for the specific Dutch situation:

- (a) When there is a psychosis, does the violent behaviour appear at the beginning of the illness or does it precede it, or is there perhaps no violent behaviour at all? One possibility is that the 'internal chaos' (i.e., cognitive disorganisation and reality distortion) is so great at the start of the psychosis that serious offences are committed at that time;
- (b) Are the precursors to delinquent behaviour different for offenders with a personality disorder than for offenders with a psychosis? In case of patients with a personality disorder, it can be expected that precursors to delinquent behaviour will have been present for a long time, while for psychotic patients this period will be much shorter. After all, in case of psychosis there is a break in the lifeline;

- (c) Are the risk indicators for violence different for psychotic patients than for those with a personality disorder? Is it possible that psychotic behaviour leads to delinquent behaviour only in the presence of a comorbid personality disorder?

The term 'violent behaviour' as used here refers to a serious violent offence for which detention under the Entrustment Act (TBS) has been imposed by the Dutch legal system, the offender having either a psychiatric disorder or such limited cognitive ability that there is a high risk that the offence will be repeated. Specifically, this means (attempted) murder, (attempted) manslaughter, severe battery and injury with (permanent) damage, and arson. Sexual offences will not be included in the empirical part because the pathogenesis of sexual offences is very different for psychotic versus personality disordered offenders.

By means of this exploratory, descriptive review, we wish to investigate the possibility of testing these questions as hypotheses in a larger population. For this reason the number of patient records examined (15) is still low in the next chapter on the pilot study. As a result, we can only formulate expectations that will lead to the creation of hypotheses in the succeeding empirical chapters.

1.3 Description of the Dutch TBS-population

The studies reported in this thesis were conducted in special hospitals – in addition to a general psychiatric hospital – maintained for the implementation of TBS. In the Dutch legal system, detention under the Entrustment Act (TBS) is possible if the following criteria are satisfied:

1. There must have been a qualified offence (in general, TBS is limited to offences for which detention on remand is permitted);
2. There must have been either a mental illness (such as a psychosis) or a defective development of the mental powers (personality disorder, intellectual handicap) at the time of the offence;
3. Due to this disorder, there must be an unacceptable risk of a new offence for which TBS could be imposed.

Four groups of TBS-detainees can be distinguished on the basis of the offence committed and the psychiatric history (Van Emmerik & Diks, 1999):

- 1) A 'psychiatric' group (19% of all TBS-detainees) is responsible for either homicide or, especially, arson and numerous offences involving members of the family. Before TBS, these patients, who are often female, have had no or only one conviction and have been admitted to a psychiatric hospital on a voluntary basis. These patients often suffer from psychotic disorders and their prognosis generally involves commitment to a psychiatric hospital or a regional institution for protected living (RIBW). This group, which constitutes the psychotic study population described below, shows the most similarity with general psychiatric patients and must be considered eligible for incorporation into the mental healthcare system.

In addition, the following three groups can be distinguished:

- 2) A 'first offender' group (29% of all TBS-detainees) with a history of serious offences (homicide, sexual offences), often committed against members of the family; this group also has had no or only one conviction prior to TBS, the mental problems are less serious, there is no history of admission to a psychiatric hospital before TBS, and one can speak of a relatively favourable prognosis for an independent return to society, possibly with the exception of the sexual offenders;
- 3) A 'criminal' group (27% of all TBS-detainees) responsible for many offences involving bodily injury, sexual offences and crimes against property, often involving unknown victims; this group has had at least two convictions prior to TBS, psychotic disorders are rare, but there is frequent substance abuse and relatively many cluster B personality disorders. The group is most typically characterised as having a 'criminal' identity;
- 4) A 'mixed' group (25% of all TBS-detainees) responsible for many offences involving bodily injury and crimes against property, but rarely for homicide. The victims are mostly strangers and a relatively large proportion of the offenders (25%) has already been sentenced previously and was involuntarily committed for psychiatric care before TBS. This group has had at least two convictions prior to TBS. Both psychotic disorders and cluster B personality disorders are seen frequently, often in combination with addiction.

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Chapter II

Patients and methods: the pilot study

II.1 Introduction

In the foregoing chapter, we presented an overview of the relationship between violence, psychosis and comorbidity. Now, in this small pilot study, we shall compare two groups of patients: a group of psychotic patients detained in a TBS-clinic and another group of psychotic patients admitted to a general psychiatric hospital. The patients in the first group had all committed a very serious violent offence for which they were sentenced to detention in a high-security hospital, while the second group suffered from such a severe mental disorder that hospitalisation was also necessary because of a threat of danger. The question posed in this connection was: are there other differences between the two groups besides the violent offence? We shall pay particular attention to the temporal relationship between the onset of psychosis, the offence, and the psychiatric admission. As a control group, we used non-psychotic patients from the same TBS-clinic with a personality disorder. This made it possible to answer the following question: is the type of violence committed by psychotics different from that committed by patients with a personality disorder?

II.2 Method

II.2.1 Patient groups

The TBS patients were recruited from the Prof. W.P.J. Pompe clinic in Nijmegen, the Netherlands. The group used for comparison consisted of psychotic patients from the GGZ (Mental Health Service) in Nijmegen. All the patients were selected at random. The 'psychotic patients' were patients with an Axis I psychotic disorder (according to the DSM-IV; American Psychiatric Association, 1994) such as schizophrenia, a bipolar disorder or a delusional disorder. The 'personality disordered' patients included patients with personality disorders of the cluster B type (according to the DSM-IV), such as antisocial or narcissistic personality disorders.

Three groups were formed: Group A (n=5) consisted of psychotic TBS-detainees without a personality disorder; Group B (n=5) consisted of psychotic patients under

general psychiatric care without either a personality disorder or a prior offence. These patients were between 20 and 50 years of age and were recruited from a long-stay ward (minimal duration of admission: 2 years); Group C (n=5) consisted of non-psychotic TBS-detainees with personality disorders only. All patients were matched for gender (all were male), age and ethnicity.

II.2.2 Study strategy

The three groups were compared on the basis of previously existing data. The anamnestic, diagnostic and psychological test data were retrieved retrospectively from reports to the court and intake interviews. In the case of Group B, the medical files were examined, with special attention for the prior history.

II.2.3 Instruments

Clinical assessment of the diagnoses (five axes of the DSM-IV) was standardised by a multidisciplinary team of psychiatrists and psychologists, mostly in the Observation Clinic of the Ministry of Justice (Pieter Baan Centre, Utrecht). All offenders had to stay there for several months. In general, one could say that the psychiatrist draws conclusions as to the presence or absence of psychiatric illnesses, with their symptoms and the resulting limitations, while the psychologist draws conclusions as to the abnormalities in character structure and behaviour (van Marle, 2000). The diagnoses were reassessed carefully in the hospitals to which the offenders were admitted. For the assessment of personality disorders (Axis-II of the DSM-IV), a MMPI-2 was available for each psychotic or non-psychotic patient.

In addition to a list of sociodemographic, psychiatric and criminal variables drawn up on the basis of a review of the literature (see: Appendices at the end of this thesis), the following tools were used in order to determine the precursors of delinquent behaviour:

- (a) psychosocial stress factors, measured on Axis IV of the DSM-IV, as well as the relevant V-codes (for example, a rupture in the relationship with the partner) can affect the diagnosis, treatment and prognosis of mental disorders (Axes I and II). The period of time over which such stress factors should be measured is from 2 years before until 2 years after the index offence (or the last admission for Group B);

- (b) the Child Behavior Checklist (CBCL) (Achenbach, 1991) was scored on the 11 scales: the total problem score; internalising behaviour; externalising behaviour; and the 8 syndrome scales (withdrawn, somatic complaints, anxious/depressive, social problems, thought problems, attention problems, aggressive behavior, and delinquent behavior). The items were examined for their presence or absence;
- (c) the historical items of the HCR-20 (Historical, Clinical Risk assessment guide 20, Webster et al., 1997), a risk assessment tool for violent behaviour. These historical items are: previous violence, young age at first violent incident, relationship instability, employment problems, substance use problems, major mental illness, psychopathy, early maladjustment, personality disorder, and prior supervision failure. Psychopathy, item H-7, was scored with the aid of the PCL-SV. The PCL-SV is a Screening Version of the PCL-R (according to Hare, 1991) that is commonly used for research purposes;
- (d) by reviewing the family history, we checked whether or not the biological father and/or mother had suffered or was suffering from a psychotic or depressive disorder.

II.3 Results

II.3.1 Diagnoses at the time of the index offence or index admission

In group A, three of the five patients had a diagnosis of paranoid schizophrenia, one patient had a psychotic disorder NAO, and one patient had paranoid schizophrenia plus substance abuse and pathological gambling. In group B, two patients had a diagnosis of paranoid schizophrenia, two patients had paranoid schizophrenia plus substance abuse, and one patient had paranoid schizophrenia and pathological gambling. All of the patients with a personality disorder only (group C) had a cluster B personality disorder (antisocial and/or narcissistic) with substance abuse.

II.3.2 The onset of the psychosis in relation to the admissions for aggression and the time of the index offence

In the group of psychotic TBS-detainees, there was a long delay between the first manifestation of the psychosis and the offence (an average of 7 years). Three of the

five patients committed instrumental aggression, i.e. in order to achieve a specific goal. In addition, there were psychiatric interventions, rare cases of admission accompanied by aggression (i.e., involuntary admissions), and no ambulatory contacts with psychiatry.

The first three patients in the group of psychiatric patients from a general psychiatric hospital had a history of repeated admissions with aggression, usually involuntary. The other two patients displayed a different pattern, in which the admissions were seldom preceded by aggression. These two patients had never been admitted involuntarily.

II.3.3 Circumstances at the time of the index offence or index admission

All of the patients in all three groups were single or divorced, unemployed, and either lived with their parents or had their own domiciles. Three of the victims in group A were unknown persons; in three patients the victim was an adult, in one case the victim was a child, and in one case there was no victim (arson). In group B, two patients had displayed aggression towards known individuals, in one case the aggression was directed at the patient himself, and in two patients there was no aggression during the index admission. In four TBS-detainees with a personality disorder the victim was a known individual. All of the victims in Group C were male adults, while in Group A there were four adult victims and one child. Only one patient in both group A and Group B were under the influence of substance abuse at the time of the index offence or index admission; in contrast, all of the patients in Group C were under such influence at that moment.

II.3.4 Motivation of the offence

All of the psychotic TBS-detainees (group A) had delusions at the time of the offence, alone or in combination with hallucinations (n=2). In group C, three of the offences were motivated by material gain, while in the other two patients in this group the motives were calculated revenge or the immediate reaction to provocation. Two of the patients in Group B had delusions or hallucinations at the time of the aggression during the index admission, in one patient the aggression was a reaction to provocation, and in two cases there was no aggression during the index admission.

II.3.5 Risk factors present: HCR-20 H-items and PCL-SV scores

There were only minimal differences between groups A and B (9 +/- 2 & 7 +/- 3, respectively). The scores in group C were definitely higher (17 +/- 2). In groups A and B, the scores on the PCL-SV were 5 +/- 2 and 6 +/- 5, respectively, compared to 21 +/- 2 in Group C. The spread in Group B was greater, however, meaning that the picture was much more variable.

II.3.6 Influence of psychosocial stress factors and relevant V-codes

The data on the stress factors, measured on Axis IV of the DSM-IV, and the relevant V-codes were examined to determine their presence or absence. The most important problems in all three groups were related to the primary support group, professional problems and financial problems. It is striking, in this connection, that all of these stress factors had been present for a long time, long before commission of the offence (longer than one year). Only a rupture in the relationship with the partner or important relatives could have been an acute stress factor (less than one week before the offence). There were no significant differences between the groups.

II.3.7 Symptoms of the psychosis

To assess these, a three-point scale was used in which 0 stood for no symptoms within the factor, 1 stood for possible or limited symptoms, and 2 indicated many clear symptoms within the factor. The psychotic delinquents (group A) scored higher on the negative symptoms (the factor psychomotor poverty) as well as, to a lesser extent, on the positive symptoms (the factor reality distortion). The symptoms of the three-factors concept of schizophrenia (Malla, 1993) were used here.

II.3.8 Data on the patients' families

The following items were scored: physical illness of the parents, parental conflict, parental violence towards the child, parental negligence, a poor relationship with the child, poor parenthood, sexual abuse, and poverty. All items were scored as either present or absent. There were minimal differences between groups A

(average positive score=3) and B (average positive score=2). There were more positive scores in Group C (average score=5).

II.3.9 Behaviour problems in childhood and adolescence

Groups A and B were again very similar: the internalising symptoms had already begun before school age and persisted throughout childhood. The externalising symptoms began at the age of 12-16 years. This was very often accompanied by drug abuse. The cognitive disorders began at about the age of 16. In group C, the tendency was in the opposite direction: the externalising symptoms had begun very early in childhood (before school age), as had the attention problems. The internalising symptoms began at the age of 12-16 years.

II.4 Discussion

In other countries, because of the different legal systems, TBS-patients are often confined in psychiatric hospitals (the psychotic ones) or in prison (those with personality disorders). Comparing the results of this pilot study with those in the literature is therefore not readily possible. The varied definitions of psychotic patients in the different studies are striking. In my opinion, in studies of violence among psychotic patients, insufficient consideration is often given to comorbidity (see, among others, Munkner et al., 2003; Nijman et al., 2003; van Panhuis, 1997), such as the presence or absence of a personality disorder, substance abuse, or paraphilia.

The most important goal of this pilot study was to assess, and possibly improve, the usability of the proposed tools. The first difficulty was the fact that data collection took place in two different hospitals with different types of patient records. It is also striking that the data from childhood and adolescence for the group of psychiatric patients in general psychiatry are rather limited. This should certainly be taken into consideration in future studies. Moreover, we have the feeling that the internalising symptoms in childhood and adolescence are underreported in this group. We have assumed that violent behaviour is reported, especially because this often leads to contact with the police or judiciary.

The second difficulty is that data on the psychosocial stress factors following the index offence were no longer available for the TBS-detainees, either psychotic or with a personality disorder. Finally, the most striking finding was that the three involuntarily admitted patients in Group B had been responsible for a very large number of aggressive incidents (just before or during admission). Because the psychotic patients in Group B that had never been admitted involuntarily showed a different pattern with regard to aggression during admission, future studies will include only patients that were admitted involuntarily the last time.

With regard to the results, the following reflections are in order. There was only one double diagnosis in Group A, compared to three in Group B. Three of the five patients in Group A committed instrumental aggression, but this is probably a chance finding due to the small size of the group. We would actually expect mainly expressive aggression in psychotic delinquents. The literature indicates that the victims of psychotic offenders are usually members of the family or known persons, which was not the case here. This may again be due to the small size of the group, or due to the highly specific characteristics of the psychotic TBS-detainee. Most of the studies on the victims of psychotic patients deal with patients in general psychiatry.

All of the patients in Group C were psychopaths according to the PCL-SV. It is well known that psychopathy is not rare among delinquents with a personality disorder.

In view of the purpose of the pilot study, we also examined some of the tendencies in the scores for behaviour problems. It is striking that the psychotic and personality disordered patients showed opposite patterns. In psychotic patients (both TBS-detainees and patients in general psychiatry), we see internalising symptoms starting in early childhood, with the externalising symptoms beginning to appear in puberty. In contrast, TBS-detainees with a personality disorder already manifest many externalising symptoms in childhood, with the internalising symptoms beginning to appear in puberty. The internalising symptoms that begin to appear in puberty in patients with a personality disorder are probably related to the onset of depressive and anxiety disorders at that age. Another possible cause may well be a reaction to, for example, affective neglect.

The differences between psychotic delinquents and those with a personality disorder are evident. A striking finding is that there were practically no differences between the psychotic patients that had or had not committed an offence (groups A and B). When the symptoms of the psychosis were examined in more detail, the factor 'psychomotor poverty' revealed more symptoms in the group of psychotic delinquents. This was also true, although to a lesser extent, for the factor 'reality distortion'. This finding, together with a limited primary support group, may mean that such patients are less rapid and adequate in making contact with mental healthcare services. As a result, their symptoms may become worse, increasing the possibility of a serious offence.

The average number of previous admissions to a psychiatric hospital in Group A is one, and there were no contacts with ambulatory care. Some of the patients did have the intention to make contact, but the offence was committed before the first contact was actually made. This may also explain the long delay between the first psychotic episode and the TBS-offence (average time: 7 years). We can justifiably characterise these psychotic delinquents as 'worrisome care avoiders'. This group of patients, and society, would seem to be a victim of the socialisation of psychiatric care, which places strong emphasis on voluntariness and own initiative.

In Group B, the average number of previous admissions is four, and there was also ambulatory psychiatric care between admissions. The delay between the first psychotic episode and the first involuntary admission was very short in two patients (at most a few days); in one patient this was five months. A possible explanation for this is that these patients attract more attention as a result of their positive symptoms and that their primary network enables them to find the way to psychiatric care more rapidly and in a more adequate manner.

II.5 Conclusion

Psychotic patients that have or have not committed an offence show a great deal of similarity with regard to their symptoms. It appears that the postponement of the necessary care by psychotic delinquents increases their tendency to refuse social contact, so that their illness becomes worse and they become more explosive.

Further research will be necessary to provide the statistical proof for this conclusion.

Moreover, in the larger study, we also wish to include a group of psychotic delinquents with a personality disorder. It happens all too often that psychotic delinquents are not differentiated on the basis of this important comorbidity, which may constitute a more important causative factor for repeated delinquency than the psychotic illness as such. It will then have to be shown that these psychotic delinquents with a personality disorder are more similar, in their life histories and stress factors, to the group of delinquents with a personality disorder only. We shall discuss this point further in the empirical chapters, following the two review chapters.

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Chapter III

Diagnostic comorbidity in psychotic offenders and their criminal history: a review

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III.1 Introduction

Professionals in mental healthcare are more and more often being held responsible for the behavior of the mentally ill patients that they are treating, some of which turn out to be violent. The possibility of violent behavior among psychotic patients is especially a subject of discussion because of its unpredictability and the diverse responsibilities of public mental healthcare and the police. A large variety of personal, circumstantial and environmental factors seem to play a role here (Monahan, & Steadman, 1994). Some of these patients are less violent than the average of the population, while others are significantly more violent. This is probably due to intermediary factors that result in a confounding bias in epidemiological studies of violent behavior in psychiatric patients with a psychosis. Do psychotic patients more often show violent behavior in the presence of comorbidity such as substance abuse and/or a personality disorder?

This review covers the literature on diagnostic comorbidity as a risk factor for violent behavior in psychotic patients. The prevalence of violent behaviour in psychotics, the symptoms of the psychosis, comorbid substance abuse, and a comorbid personality disorder and/or psychopathy will be discussed, in that order.

III.2 Method

The literature between 1990 and 2006 was reviewed. A search of www.PubMed.com and www.PsychInfo.com yielded 1942 articles using the following search terms: (crime/violence) AND (psychosis/schizophrenia) AND (substance abuse); (crime/violence) AND (psychosis/schizophrenia) AND (personality disorder/psychopathy); or (crime/violence) AND (psychosis/schizophrenia) AND (youth). Ultimately, however, only 73 articles remained after eliminating the articles on the following topics: women or differences between men and women, sex offenders only, biological causes or treatment, disorders other than those specified in this study (such as eating disorders), a specific event, place or group that was not relevant to the study, too few experimental subjects, the relationship between schizophrenia and an irrelevant subject, no clearly psychotic or schizophrenic patients studied, and only the diagnostics, treatment or symptomatology of schizophrenia.

III.3 Results

III.3.1 Relationship between a psychotic disorder and violence

There is increasing evidence of a relationship between a mental disorder and violence (Angermeyer, 2000; Eronen et al., 1997; Otto, 2000; Walsh, 2002). The chance of violent behavior is greater in both men and women that have a history of psychiatric care than in people without a history psychiatric care who were convicted of an offense (Hodgins et al., 1996). There is an especially high risk associated with certain psychiatric diagnoses and certain constellations of symptoms, such as schizophrenia and other psychotic disorders combined with substance-related disorders and an antisocial personality disorder (Eronen et al., 1998).

A study of the relationship between the diagnosis 'psychotic disorder' and the number of arrests revealed that the type of diagnosis and the social class, together with gender and the number of psychiatric admissions, are predictors of the differences in number of arrests among persons with psychosis (Muntaner et al., 1998). Conviction for a criminal offense also appeared to be related to the psychiatric diagnosis. Thus, compared to men with an affective psychosis, schizophrenic men had a greater chance of previous conviction, time in prison, a younger age at time of first conviction, and more violent offenses (Coid et al., 1993). Other studies have also shown that the chance of committing an offense against property, a drug-related offense or a violent crime is greater among persons with schizophrenia than in a matched control group from the general population (Modestin, & Ammann, 1996; Wessely, 1994, 1998). The chance of committing murder was even ten times as high as in the general population (Eronen et al., 1996). Despite the larger number of violent offenses committed by persons with schizophrenia, the violence was almost always less severe than in the general population (Linqvist, & Allebeck, 1990).

Two groups can be distinguished among offenders with a mental disorder: early starters, who already began their criminal career in childhood (under the age of 18); and late starters, who committed their first offense while adults (over the age of 18). Early and late starters differ in their behavior, comorbid disorders, personality characteristics, and the tendency to refuse treatment, both in childhood and adolescence and in adulthood. Their parents also differ, especially with reference to

more substance abuse (Tengström et al., 2001). These early starters were comparable to what Moffitt & Caspi (2001) described as childhood-onset delinquents that had childhoods of inadequate parenting, neurocognitive problems, and emotional and behavioral problems. Adolescent-onset delinquents did not have these pathological backgrounds. In her study, Hodgins (1992) found that the criminal behavior had started before the age of 18 in more than half of an unselected birth cohort.

The strongest predictors of violence among persons with schizophrenia are a prior history of violent behavior, male gender, low educational level, and being poor and/or unmarried (Glancy, & Regehr, 1992). It was striking that these variables seemed to be less relevant for violence in the emergency clinic or in departments where violence seemed to be related especially to the severity of the psychopathology, substance abuse, neurological problems, and the healthcare environment. One-third of all patients with a first psychotic episode is aggressive at the moment of admission, and among patients with schizophrenia, violence in the week following admission is associated with substance abuse and high psychopathological scores on the SCID (Spitzer, & Williams, 1986), the PANSS (Kay et al., 1987), and the MOAS (Kay et al., 1988) (Foley et al., 2005). Aggression on the ward is especially strongly associated with paranoid schizophrenia (Benjaminsen et al., 1996). Patients with bipolar affective disorder and schizophrenia had a 2.81- and 1.96-fold increased risk of aggression, respectively, while depression and adjustment disorder conferred a significantly lower risk. High-risk patients were identified as those who were under 32 years of age, actively psychotic, institutionalised, and known to have a history of aggression and substance abuse (Barlow et al., 2000).

According to Soliman & Reza (2001) frequent changes in medication, frequent use of sedative drugs, a history of criminal behavior, a DSM-IV diagnosis of antisocial or borderline personality disorder, and prolonged hospitalisation constitute the strongest predictors of violence among psychiatric patients. They also found a relationship between violence and involuntary admission, a comorbid diagnosis, and a past history of automutilation and substance abuse (but not including alcohol). A large proportion of the truly aggressive behavior of male patients can also be predicted on the basis of the following clinical factors: transfer from a general psychiatric hospital because of violent behavior, a double diagnosis of schizophrenia and substance abuse or dependence, physical abuse during

childhood, a cognitive disorder, and emotionality (Hoptman et al., 1999). Male gender, the number of hospitalisations, and alcohol abuse were predictors of aggression towards others. It was concluded that aggression directed at oneself and others is a frequent symptom of schizophrenia and is strongly associated with readmission (Steinert et al., 1999).

Tengström (2001) emphasised the importance of historically determined risk factors for the long-term prediction of violence or recidivism. Factors that are associated with long-term recidivism are criminal behavior during childhood and adolescence, a younger age at the moment of release from prison, drug-related offenses, conviction for a violent offense, being separated from one's parents before the age of 16, alcohol-related offenses, offenses of various types, short periods of work, and the absence of a psychosis (Villeneuve, & Quinsey, 1995). Teplin et al (1994) investigated whether prisoners with schizophrenia, an affective disorder, a substance-related disorder, or psychotic symptoms (hallucinations and delusions) were arrested more often during the six years after release from prison than prisoners without a mental disorder. Neither a severe mental disorder nor substance abuse or dependence predicted the probability of arrest or the number of arrests for violent offenses. The stereotype that psychotic criminals always, without exception, commit violent offenses after release from prison turned out not to be true. This finding was supported by the study of Rice and Harris (1995). In that study, schizophrenia was associated with recurrent violence, but the relationship with recent discharge from an institution was negative.

Violent behavior is generally associated with more severe psychotic symptoms, especially cognitive disorders and delusions (Taylor et al., 1998; Steinert et al., 2000). Fresán et al. (2005) came to a comparable conclusion but added hallucinations, poor control over impulses, and a state of excitation. Our own study (Goethals et al., 2007) revealed that psychotic patients detained in a Dutch maximum security hospital did not have more positive psychotic symptoms than psychotic patients in general psychiatry. There were, however, a few symptoms of psychomotor poverty that were seen significantly more often in these psychotic patients, i.e. the inability to feel intimacy and closeness, social inattentiveness, and lack of persistence at work or in school. Nolan et al. (2003) emphasised the relation between violence and positive psychotic symptoms such as delusions, hallucinations

and poor control over impulses, but also found a relation with psychotic confusion and disorganisation. The presence of severe positive symptoms increased the chance of aggression during the first six months after discharge (after controlling for the presence of an antisocial personality disorder, a pathological PCL-score, and a prior diagnosis of substance abuse). During a second period after discharge (after controlling for the same variables), the presence of severe positive symptoms again increased the chance of aggressive behavior, but so did the presence of or an increase in threat and control-override (TCO) symptoms. One speaks of threat and control-override when the (paranoid) feeling of being threatened is so intense that loss of control (control-override) occurs in a psychotic patient. Neither medication nor involuntary admission was able to reduce the chance of aggressive behavior after controlling for the presence of positive and TCO symptoms (Hodgins et al., 2003). Swanson et al. (1996) duplicated a study in which an increased risk of violence was associated with a certain cluster of psychotic symptoms, including TCO symptoms. Respondents with TCO symptoms had twice as high a risk of violent behavior as respondents with hallucinations and other psychotic symptoms, and five times as high a risk as respondents without a mental disorder. However, Appelbaum et al. (2000) found no relationship between violent behavior and delusions in psychiatric patients. This was true for delusions in general as well as for the more specific "threat/control override" delusions. The TCO concept also turned out to be unusable as a predictor of violence. There were no significant differences in the prevalence of TCO symptoms during the course of the illness between a group of forensic patients with schizophrenia and a matched group of schizophrenic patients that had not committed an offense. When the severity of the offense was taken into consideration, TCO was found to be associated with severe violence that could be ascribed primarily to non-specific feelings of threat. Control-override (which is considered to be more or less typical for schizophrenia) showed no significant association with the severity of violent behavior (Stompe et al., 2004).

III.3.2 Comorbidity of schizophrenia, violence, and substance abuse

Since 1990, research has revealed considerable variation in the prevalence of substance abuse in patients with schizophrenia. In a sample of schizophrenic patients, Cantor-Graae et al. (2001) found a lifetime prevalence of substance abuse of 48.3%, mainly alcohol, alone or in combination with other agents. Significant

associations were also found between substance abuse and male gender, criminal behavior, more frequent hospitalisation, and a family history of substance abuse. Swanson et al. (1997) found violent behaviour in psychiatric patients to be related to comorbid substance abuse, the absence of recent contact with psychiatric services, and psychotic symptoms such as a feeling of being threatened and cognitive disorganisation. Soyka (2000) emphasised the importance of recurrent intoxication, so that the increased risk of aggression cannot be interpreted simply as the result of poor social integration. Finally, Tengström et al. (2001) emphasised the importance of substance abuse in early starters (those with the first conviction before the age of 18), due to both the presence of a diagnosis of substance abuse and the fact that most early starters were intoxicated at the time of the offense. Moreover, early starters differed from late starters in the prevalence of substance abuse by the parents, low grades at school, and a conduct disorder at an early age.

What is the effect of substance abuse on the relation between violence and a psychotic disorder? According to Smith & Hucker (1994), substance abuse is more prevalent among psychiatric patients than previously supposed. Patients with schizophrenia, especially, are more susceptible to the negative effects of substance abuse, such as antisocial and violent behaviour. Phillips (2000) arrived at a comparable conclusion: the prevalence of violent behavior was higher in patients with both a psychiatric disorder and comorbid substance abuse than in those with a single diagnosis. Such a dual diagnosis was a significant predictor of violent behavior. Male patients with schizophrenia in a large Finnish birth cohort were also found to be at high risk of committing a violent offense (Tiihonen et al., 1997). The prevalence of registered offenses was highest among schizophrenic patient with comorbid alcohol abuse and patients with an alcohol-induced psychosis. Steinert et al. (1996) compared a group of violent male patients with schizophrenia with non-violent patients with schizophrenia; substance abuse was seen in 70% of the aggressive male patients with schizophrenia versus 13% of the patients who had no history of violent behavior. This is in agreement with the results of a study by Blanchard et al. (2000). According to them, substance abuse was seen in half of the schizophrenic patients, especially in young men.

A large retrospective study of hospitalised Swiss patients and a matched control group from the total Swiss population (Modestin, & Ammann, 1995) revealed that

the number of criminal convictions was significantly higher among users of alcohol and drugs, independent of sociodemographic factors. The chance of having a criminal record was twice as high among schizophrenic males with comorbid substance abuse as in schizophrenic males without substance abuse (Modestin, & Würmle, 2005). In comparison with the rest of the population, however, the chance of having committed a violent offense was greater in patients with schizophrenia without substance abuse. Our own study (Goethals et al., 2008) revealed that violent male psychotic offenders with a substance abuse-related disorder were significantly younger at the time of their first conviction, but they had not committed more violent, sexual offenses or offenses against property and had not spent more months in prison prior to the index offense than psychotic offenders without a comorbid diagnosis of substance abuse. However, the prior criminal history was no more serious in those that were intoxicated at the time of the index offense than in those that were not intoxicated. We concluded that the role of substance abuse in psychotic offenders was related directly to the psychotic disorder and less to the criminal environment in which these patients find themselves. Finally, van Panhuis & Dingemans (2000) compared three Dutch cohorts of mainly male, violent psychotic offenders. This comparison also showed that the use of alcohol and drugs can aggravate violent behavior in patients with a psychosis.

Does substance abuse affect certain aspects of psychiatric care? Munkner et al. (2003) analysed the records of all Danish patients with schizophrenia born after 1 November 1963. A substance abuse-related diagnosis was associated with a younger age at the time of first contact with a psychiatric hospital, but had no effect on the age at the diagnosis of schizophrenia. Lindqvist & Allebeck (1990) found that the most offenses were committed by patients that had been ill for many years but had never been hospitalised. These results again underline the role of substance abuse and social disintegration in the violent behavior of patients with schizophrenia. The study by Swartz et al. (1998) showed that the combination of comorbid substance abuse and poor compliance with medication increased the risk of violent behavior in psychotic patients.

What is the impact of the type of substance abuse on violent behavior? In Finland, the likelihood of committing a violent offense was 25 times as high in male schizophrenic patients that used alcohol as in mentally healthy persons, compared

to 3.6 times for patients with schizophrenia that did not use alcohol and 7.7 times for patients with other psychoses (Räsänen et al., 1998). In this study, patients with schizophrenia that did not use alcohol did not have relapses, in contrast to those that did use alcohol. In a New Zealand birth cohort, Arsénault et al. (2000) investigated the relation between mental illness and violence. Individuals with alcohol dependence, cannabis dependence, and a schizophrenic disorder had a 1.9, 3.8 and 2.5 times greater chance, respectively, of displaying violent behavior. The individuals with at least one of these three disorders constituted one-fifth of the study population but were responsible for half of all violent offenses. In persons with alcohol dependence, their violent behavior could best be explained by the use of alcohol prior to the offense. In persons with cannabis dependence there was an association with a conduct disorder in childhood.

The assumption that substance abuse precedes violence in society was investigated by Cuffel et al. (1994). The chance of displaying violent behavior was especially high in patients with a pattern of multiple drug use, including illegal drugs. Miles et al. (2003) reported that 34% of their psychotic patients used alcohol, 22% alcohol and cannabis, 12% cannabis alone, and 24% stimulants. A history of violent behavior was seen significantly more often in the users of stimulants. There were hardly any other differences between the various subgroups of patients with various types of substance abuse. Corbett et al. (1998) found no indication that patients with schizophrenia prefer a particular type of drugs compared to patients with a personality disorder. Drug abusing male inpatients with a personality disorder were significantly more likely than patients with schizophrenia to have consumed alcohol at the time of the violent offense.

Finally, let us examine the effect of a combination of substance abuse and a personality disorder in psychotic offenders. The prevalence of a comorbid personality disorder and substance abuse in male psychotic patients convicted for (attempted) murder was investigated by Putkonen et al. (2004). A lifetime prevalence of substance abuse was found in 74% and alcohol abuse in 72%. Half of the group had a comorbid personality disorder, including 47% with an antisocial personality disorder. It is striking that substance abuse was seen in all offenders with a personality disorder. Only 25% of the patients did not have a comorbid disorder. Steele et al. (2003) compared patients with schizophrenia with and without

substance dependence. Those with substance dependence more often had a criminal history and were intoxicated prior to hospitalisation. Moreover, they more often had an antisocial personality disorder. In a study by Baxter et al. (1999) schizophrenic patients were followed for 10 years after their discharge from a medium-security treatment facility. Prior to treatment, the patients had a history of frequent intramural psychiatric care, violent offenses, substance abuse, alcohol abuse to a lesser degree, and a conduct disorder. Compared to patients with only schizophrenia, those with a comorbid conduct disorder or problematic use of alcohol had twice as high a risk of violent behavior. The chance of a relapse was increased by young age, multiple drug use or a conduct disorder.

III.3.3 Comorbidity of schizophrenia with a personality disorder

First, we shall examine the association between schizophrenia, an antisocial personality disorder, and criminal behavior; next, we shall review articles about the association between a personality disorder and the number of convictions, the onset of criminal behavior, and the association between an antisocial personality disorder and other disorders; and finally, we shall examine a study of mentally ill homicidal offenders.

Hodgins et al. (1999) studied 74 patients with schizophrenia in a 2-year follow-up study (after discharge). By the end of that period, only 15% had committed crimes, most violent. They found that a comorbid antisocial personality disorder was associated with criminality. In a report from the UK 700 trial, Moran et al. (2003) came to similar conclusions: psychotic patients with a comorbid personality disorder were 1.7 times more likely to have behaved violently over the 2-year period of the trial. An investigation of 94 patients in a maximum security psychiatric unit revealed that 36% of the patients with a DSM-IV axis I diagnosis also met the criteria for an axis II diagnosis. The most frequent association was between schizophrenia and an antisocial personality disorder (Rasmussen, & Levander, 1996).

Inmates with a Major Mental Disorder plus a comorbid antisocial personality disorder had had more total convictions and more convictions for violent offenses (Hodgins, & Côté, 1993a). In a small study by Steinert et al. (1998), schizophrenic patients with an antisocial personality disorder had significantly more previous convictions and drug abuse in their history than patients without an antisocial

personality disorder. With regard to the onset of criminality, patients with a Major Mental Disorder plus an antisocial personality disorder had an earlier onset of their criminal career, more convictions, and more convictions for non-violent offenses than those without an antisocial personality disorder (Hodgins, & Côté, 1993b). Moran & Hodgins (2004) found a strong association between a comorbid antisocial personality disorder and substance abuse, attention/concentration problems, and poor academic performance in childhood. In adulthood, there was a strong association between a comorbid antisocial personality disorder with alcohol abuse or dependence and the 'Deficient Affective Experience' (Moran, & Hodgins, 2004). The 'Deficient Affective Experience' is determined by four items from the PCL-R: shallow affect, lack of remorse, lack of empathy, and 'doesn't accept responsibility' (Hare, 1991). This is highly predictive of violent behavior (Cooke et al., 2004). However, they found no differences between patients with or without a comorbid personality disorder in either the course or the symptomatology of schizophrenia.

Finally, a retrospective study of 90 patients with a Major Mental Disorder (schizophrenia, schizoaffective disorder or other psychosis) who had committed homicide revealed that a personality disorder accounted for 51% of the study group, and in 47% this was an antisocial personality disorder (Putkonen et al., 2004). It was also striking that all subjects diagnosed with a personality disorder had a comorbid substance-related disorder.

III.3.4 Comorbidity of schizophrenia and psychopathy

First, we shall examine the association between psychotic disorders, psychopathy and violence; next, we shall describe some institutional outcome data; and finally, we shall examine the onset of schizophrenia and the number of arrests in patients with both schizophrenia and psychopathy.

Crocker et al. (2005) examined 203 patients with dual disorders (severe mental illness and a comorbid substance-related disorder) and their prospective relationship to criminality and violence over a period of 3 years. The scores on the Self-Report Psychopathy Scale (SRP-II) had only limited associations with criminality and violence. However, an antisocial personality disorder, thought disturbance, negative affect, and earlier age at psychiatric hospitalisation were predictive of aggressive

behavior. In a forensic psychiatric sample, Nedopil et al. (1995) found a frequent association between psychopathy, substance abuse and personality disorders, and a lower comorbidity of psychopathy with dementia and schizophrenia. Finally, a comparison of aggressive (n=13) and non-aggressive (n=13) schizophrenic in-patients revealed that the aggressive patients had earlier starting problems and a higher score for psychopathy (Rasmussen et al., 1995). Dolan & Davies (2006) examined the institutional outcomes (12 weeks post-admission to a medium secure unit in the UK) of 134 male patients with DSM-IV schizophrenia assessed using the PCL:SV (screening version of the PCL-R). The patients with high psychopathy scores were more likely to be violent, non-compliant with programmes, engage in substance abuse violations, have criminal attitudes/peers, and have low levels of insight into risk and violence. Psychopathy was a modest predictor of institutional outcome. Tengström et al. (2000) found that psychopathy was strongly associated with violent recidivism. They studied 202 male schizophrenic offenders retrospectively with a mean follow-up of 51 months; 22% of them had a score on the PCL-R of 26 or higher, while 21% displayed violent recidivism. In the short-term prediction of violence, the symptoms of the illness may be more important than psychopathy for the accuracy of prediction. However, in the long-term prediction of violence, information on risk factors derived from situational factors and relatively stable traits in personality (psychopathy) are important.

Finally, the comorbidity of schizophrenia and psychopathy was more common among violent patients than among non-violent patients (Nolan et al., 1999). Higher psychopathy scores were associated with an earlier onset of schizophrenia and more arrests for both violent and non-violent offenses.

III.4 Discussion

In much of the existing literature (Munkner et al., 2003; Nijman et al., 2003; van Panhuis, 1997), it is often unclear whether the authors studied schizophrenic patients with or without a personality disorder. Although it has been affirmed in many studies that schizophrenic patients commit more violent offenses than the general population, the influence of comorbidity as a confounding factor is extremely high when the relevant literature is taken into account.

Compared to late starters, early starters more often have a diagnosis of substance abuse, are more often intoxicated at the time of the offense, and more often have parents that abuse alcohol or drugs. The distinction between early and late starters is important because early starters start criminal behavior younger, in a more severe fashion, and persist in this for a longer time (Tengström et al., 2001). Persons with schizophrenia that abuse alcohol or drugs have a higher number of criminal convictions and a greater chance of a criminal record. In schizophrenic offenders, the combination of substance abuse and a personality disorder increases the chance of a relapse.

A comorbid personality disorder, especially an antisocial personality disorder, is associated with criminal behavior. Psychotic patients with an antisocial personality disorder often start criminal behavior at a younger age and abuse more alcohol or drugs. The 'Deficient Affective Experience' seems to be a promising predictor of violent behavior.

Only a few studies were found on the comorbidity of schizophrenia with psychopathy. Patients with high psychopathy scores were more likely to be violent, non-compliant with programmes, engage in substance abuse violations, have criminal attitudes/peers, and have low levels of insight into risk and violence. Next, psychopathy was strongly associated with violent recidivism. Finally, the comorbidity of schizophrenia and psychopathy was more common among violent patients than among non-violent patients.

Substance abuse and a comorbid personality disorder or psychopathy have been confirmed as important risk factors by many authors. The combination of those risk factors as comorbidity in a single patient is highly explosive, and is often prevalent in psychotic offenders.

III.5 Conclusion

This review has revealed a high degree of agreement on the point that diagnostic comorbidity increases the chance of violence. Thus, possible comorbidity in schizophrenic patients should be routinely mentioned in scientific research as it has a significant effect on the course of the patient's illness. This high degree of agreement also leads to the conclusion that such comorbidity should be taken seriously when the patient's treatment program is being set up. In cases with such comorbidity, treatment of the psychotic disorder as such is not possible and not feasible, not only for the patient himself but also for the security of the community.

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Chapter IV

Cirumstantial risks in psychotic offenders and their criminal history: a review

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IV.1 Introduction

Since the 1980s, many studies have been done in order to clarify the association between mental disorders and violent behavior. This was made possible by the improved techniques for scientific population studies, together with the ever increasing demand from society for ways to prevent and control delinquent behavior. Professionals in mental healthcare were more and more often being held responsible for the behavior of the mentally disturbed individuals that they were treating, some of whom turned out to be violent. Especially the possibility of violent behavior on the part of psychotic patients became a point for discussion. It turned out that a large variety of personal, situational and environmental factors play a role here (Monahan & Steadman, 1994). An important observation was that not all psychotic patients are equally dangerous. Some are even less violent than the average in the population, while others are significantly more violent. One of the questions raised was whether violent behavior in psychotic individuals is a symptom of the disorder and connected with its etiopathogenesis, or whether the psychosis is preceded by violent behavior that was already apparent, for example, in childhood and adolescence. Is violent behavior a product of the psychosis or did it exist earlier? Is it brought on by the psychosis or does it develop independently? Or does violent behavior appear especially in the presence of comorbid substance abuse and/or a personality disorder?

The purpose of this review is to study the literature on the influence of the circumstantial risks to which violent psychotic patients were exposed since childhood. The temporal relationship between a psychotic disorder and criminality, prior psychiatric care, the victims, psychosocial and circumstantial problems, and behavior problems in childhood and adolescence will be discussed in that order.

IV.2 Method

The literature between 1990 and 2006 was reviewed. A search of www.PubMed.com and www.PsychInfo.com yielded 1942 articles using the following search terms: (crime/violence) AND (psychosis/schizophrenia) AND (substance abuse); (crime/violence) AND (psychosis/schizophrenia) AND (personality disorder/psychopathy); or (crime/violence) AND (psychosis/schizophrenia) AND (youth). Ultimately, however,

only 29 articles remained after eliminating the articles on the following topics: women or differences between men and women, sex offenders only, biological causes or treatment, disorders other than those specified in this study (such as eating disorders), a specific event, place or group that was not relevant to the study, too few experimental subjects, the relationship between schizophrenia and an irrelevant subject, no clearly psychotic or schizophrenic patients studied, and only the diagnostics, treatment or symptomatology of schizophrenia.

First, we will examine the articles on the first psychotic episode, its diagnosis or the first psychiatric admission, and the relationship between this and the time of the first offense; next we will examine the articles dealing with the temporal relationship between the onset of the psychosis and its treatment or first psychiatric admission; and finally we will examine two factors that affect or are in any case related to the timing, namely, substance abuse and age. The victims, psychosocial and environmental problems, and the behavior problems in childhood and adolescence will also be considered here.

IV.3 Results

IV.3.1 Temporal relationship between the onset of a psychotic disorder and the first criminal offense

A twin study by Coid et al. (1993) examined the relationship between severe psychiatric illness (i.e., schizophrenia, not a personality disorder) and criminality. The onset of schizophrenia preceded the start of criminal behavior by an average of one year. Another study (Taylor & Hodgins, 2003) revealed that a criminal career can begin either before or after the onset of a psychotic disorder, but that violence almost always starts after the onset of the psychosis. A study by Humphreys et al. (1994) examined a group of people who were in the first psychotic episode of schizophrenia and had committed an offense during the preceding five years. In half of these patients, the offense was strongly associated with specific psychotic symptoms. For half of this group this was the first offense. In 25% of the total group of schizophrenic patients who had committed an offense, the onset of psychosis had come first, followed by their first offense and then the first admission. Another

25% of the total group had first committed an offense, followed by the onset of psychosis and then the first admission. In half of the group, the temporal relationship between these occurrences was unclear. In summary, we can conclude that some studies report that the offense precedes the psychotic disorder, while other studies conclude that there is first a psychosis and then an offense. Both types of temporal relationship are reported equally often.

Munkner et al. (2003a) found that most of the criminal offenses had been committed before any contact with psychiatric healthcare. The majority of the violent crimes also took place prior to the first psychiatric admission. Hodgins (1992) found that the criminal behavior of patients with a severe psychiatric disorder often already appeared during adolescence, long before diagnosis of the psychiatric disorder. Our own research revealed that in a sample of Dutch psychotic offenders, with or without a personality disorder, the first admission to a general psychiatric hospital preceded the first violent offense. Moreover, the average period of time between the first admission and the severe violent index offense was seven to nine years (Goethals et al., 2007a).

The time between the first psychotic episode and the treatment of the psychosis is referred to as the 'duration of untreated psychosis' or DUP. However, there is no consensus as to how the DUP should be measured (Malla & Norman, 2002). There is also lack of clarity regarding the type and severity of the psychotic symptoms that should be used to define the onset of a psychosis, and regarding the criteria that an adequate antipsychotic therapy must fulfill before the DUP can be considered to have ended. Perkins et al. (2005) carried out a meta-analysis of the relation between the DUP and the results of treatment. Although 70% of patients with schizophrenia first develop negative symptoms and later positive symptoms, the onset of a psychosis is more often defined by the onset of positive symptoms because these can be determined more reliably than the negative symptoms (Larsen et al., 2001). The effect of a longer DUP on violence and criminal behavior has not yet been properly investigated (Malla & Norman, 2002).

Recently, we made a first attempt to fill this gap in a forensic population detained under the Dutch Entrustment Act (TBS). In this study (Goethals et al., 2007a), we compared psychotic patients in a maximum security institution with psychotic

patients in general psychiatry. There was no difference between these groups with regard to the DUP (average duration about two years). Although the psychotic patients in a maximum security institution without a personality disorder had a DUP more often than psychotic patients in general psychiatry, this was not true for psychotic patients in a maximum security institution with a personality disorder. The DUP lasts 1-2 years, on average, and many studies have shown a significant correlation between the DUP and poor results of treatment (Larsen et al., 2001).

Munkner et al. (2003b) also found a relationship between substance abuse and the time between the first psychiatric admission and the diagnosis of schizophrenia. Patients with a diagnosis of substance abuse appeared in the psychiatric care system five months earlier than patients without a diagnosis of substance abuse. The cause of this could be that a more disruptive illness had led to attempts at self-medication, or that substance abuse had led to an earlier recognition of the need for psychiatric help. When the diagnosis of substance abuse was made at the moment of first psychiatric contact, it had no effect on the time between such contact and the diagnosis of schizophrenia. However, when substance abuse was not diagnosed until after the first contact, then it took longer for the diagnosis of schizophrenia to be made. This was true for men and women considered together; when only men were considered, however, it turned out that those with a diagnosis of substance abuse at the moment of first contact had less chance of being diagnosed with schizophrenia during this first contact, so that their DUP was longer. Among Dutch psychotic offenders with a personality disorder, severe substance abuse shortened the time interval between the first conviction for a violent offense and the first psychotic episode by an average of eight and a half years, from 9½ years to 1 year (Goethals et al., 2007a).

Munkner et al. (2003a) studied patients' records in order to determine the impact of criminality on the age at which a person first comes into contact with psychiatric care and on the age at which schizophrenia is diagnosed. They concluded that persons who committed their first offense before coming into contact with psychiatric care were 13 months older, on average, at the time of first contact than persons who committed their first offense after this contact. This also applied to the diagnosis of schizophrenia, which was made at an older age in persons who had committed an offense than in persons who had not committed an offense,

regardless of whether the offense was violent or non-violent and regardless of whether it was committed before the first contact with a psychiatric institution or between that first contact and the diagnosis of schizophrenia. The commitment of an offense during these intervals was associated with an older age at the time of diagnosis of schizophrenia. Those who were diagnosed at the time of their first psychiatric contact were 11 months older at the moment of diagnosis than those in whom it was more difficult to reach a diagnosis. There was also a difference in the time between the first contact with a psychiatric institution and the diagnosis. The older a person was at the moment of first contact, the more quickly he could be diagnosed as schizophrenic. Persons with a police record at the moment of first contact with a psychiatric institution were diagnosed more quickly, while persons who committed an offense between the first contact and the diagnosis had to wait longer for this diagnosis. When the offense was not committed until after the first contact with psychiatric care, criminals remained suspended in the legal system instead of the psychiatric system for a longer period, because of their conviction, so that it took longer to reach a diagnosis. So it really matters whether someone commits an offense before or after the first contact with psychiatry.

In a third article by Munkner et al. (2005), the results of the same 2003 study were used to determine whether there is a relationship between gender, age and substance abuse, on the one hand, and whether persons do or do not commit an offense after their first contact with a psychiatric institution or after the diagnosis of schizophrenia. The older a person is at the time of first admission to the psychiatric care system or the first diagnosis, the lower the risk that they will start on a criminal career, provided that they have not committed any crimes before. Persons who are already diagnosed at a young age are affected more by the illness, so that their condition deteriorates more rapidly from a social point of view and they run a greater risk of committing an offense.

IV.3.2 Prior use of psychiatric services

First, we will examine the articles on the quantity and quality of psychiatric services for schizophrenic patients; next, we will examine the articles dealing with the effect of a personality disorder on the psychiatric care received; and finally, we will examine the reasons for psychiatric admission.

Hodgins & Müller-Isberner (2004) examined 232 male schizophrenic patients discharged from forensic and general psychiatric institutions retrospectively with regard to their prior criminal history and admission to hospitals. Of the forensic patients, 77.8% had had prior contact with general psychiatry, while of the general psychiatric patients, 24.3% had committed an offense. Offenses had been committed before their first contact with general psychiatry by 39.8% of the forensic patients and 10.8% of the general psychiatric patients. Following their first admission, these 59 general psychiatric patients (24.3% of the 232) committed 195 non-violent and 59 violent offenses. Subsequently, 49 of them committed serious offenses that led to confinement in a forensic psychiatric institution. The patients who committed offenses before their first contact with general psychiatry differed from the non-delinquent general psychiatric patients in the presence of behavior problems before 18 years of age, alcohol abuse or addiction at the time of first admission, an antisocial personality disorder, and a high Deficient Affective Experience score (see below).

The Northern Finland 1966 birth cohort study (Timonen et al., 2000) revealed that one-third of the violent and one-fourth of the non-violent male offenders had been admitted to hospital for a psychiatric disorder at least once before the age of 32. Sixty-five violent offenders (1.2% of the total cohort) accounted for 14.4% of all of the psychiatric treatment days. The number of admissions for both violent and non-violent male offenders was significantly higher than that for men without criminal antecedents. Among the violent men, only 55.5% of the days in hospital were spent in a psychiatric hospital. The corresponding percentages for non-violent offenders and patients without a criminal history were 64.9% and 74.1%, respectively. The violent offenders spent one-third of their days in hospital in university or other large hospitals, and only 1.9% in a suitable community care system.

In contrast to these findings, our Dutch study revealed that the number of maximum security psychotic patients that had been hospitalized during the six months prior to the index offense was not significantly higher than the number of psychotic patients in general psychiatry. This last group received more ambulatory care. When we looked at the total duration of psychiatric treatment, we saw that the psychotic patients in maximum security had had significantly less treatment than psychotic patients in general psychiatry. The number of treatment episodes was

also significantly lower in the forensic group. The forensic group also had significantly fewer involuntary admissions to psychiatric hospitals than psychotic patients in general psychiatry (Goethals et al., 2007b).

Behavior problems as the result of a personality disorder usually already develop in adolescence, and sometimes there was already a conduct disorder in childhood. The effect of such severe behavior problems could be that these patients make earlier and more rapid contact with psychiatric services. Our own study showed, on the contrary, that psychotic maximum security detainees with a personality disorder had not received more psychiatric care than psychotic maximum security detainees without a personality disorder. The age of first admission was also the same (Goethals et al., 2007b).

Walsh et al. (2002) investigated the diagnostic and sociodemographic differences between forensic high-security psychotic patients (n=905) and non-hospitalized psychotic patients in contact with general psychiatry (UK700 group, n=708), both men and women. In the forensic group, 623 (75%) of the schizophrenic patients had previously been admitted to a psychiatric institution and another 178 (22%) had previously had some form of psychiatric care. It is striking that there were more schizoaffective or affective (manic) disorders in the non-forensic group. Among psychotic patients, a diagnosis of schizophrenia and male gender increased the chance of admission to a forensic psychiatric hospital. Castle et al. (1994) studied 484 patients with a non-affective functional psychosis from an inner-city catchment area over a period of 20 years, starting in the mid-1960s. They investigated whether these patients were hospitalized at the time of first contact. Approximately 20% were not hospitalized, a figure that did not change over the years. Ethnicity, gender, civil status and employment status were not predictive of hospitalization. Factors that were associated with hospitalization included the involvement of the police and violence directed at oneself or others. A diagnosis of schizoaffective disorder, paranoia, auditory hallucinations and bizarre behavior were seen more often in the patients that were hospitalized. Finally, Humphreys et al. (1992) investigated 253 patients with a first schizophrenic episode, 52 of whom manifested life-threatening behavior towards others before their first admission to hospital. The files of these 52 patients were examined at the time of their first registration. Despite a history of violence of more than a year in 24 patients and a psychotic basis in 23 patients, less

than half of these patients were admitted as a direct result of their dangerous behavior.

IV.3.3 Psychosocial and environmental stress factors and psychosis

The literature has also been examined to see what is known about the social network of patients with a Major Mental Disorder. Substance abuse and social functioning will also be viewed in this light, because these are important markers of the quality of their social network.

Estroff et al. (1994) followed 169 patients with a major mental disorder and 59 relatives of these patients for 18 months after discharge from a psychiatric hospital. A variety of disorders was included here, such as schizophrenia, major mood disorders, personality disorders, and psychoses 'not otherwise specified'. The focus was on violent behavior or threats of violence directed at the relatives. Approximately one-third of the patients were violent or threatened their relatives with violence during the follow-up period. Schizophrenics were especially violent compared to the patients with other disorders; on the other hand, threats of violence were not made any more often by these patients than by patients with other disorders, such as major mood disorders and even personality disorders. Financial dependence of the patient on his family was associated with more violent threats and behavior. More than half of the victims of violence were relatives of the patients, especially mothers with a patient living in the same home. The top five on the list of victims of violence were, in descending order: mothers, husbands or wives, other relatives, children, and finally fathers. It is striking, in this connection, that the violent patients perceived their relatives to be threatening, but did not consider themselves to be threats. Close social relationships were an important factor in increasing the chances of becoming a victim. In a later publication by Estroff et al. (1998), a 'key cluster' of risk factors was defined that increases the chances of becoming a victim of violence: a mother or first-degree relative that lives together with a patient that is financially dependent, has been diagnosed with schizophrenia, abuses drugs, and makes little or no use of mental health care.

Nordström & Kullgren (2003) studied male forensic patients with schizophrenia that had attacked members of the family. The diagnosis was thus limited to schizophrenia

and there had to have been at least one violent offense, followed by involuntary forensic-psychiatric treatment. 'Family members' was defined as: parents, relatives, brothers and sisters, and grandparents; the emphasis was thus on kinship. Partners living in the same household were not considered in this study, on the assumption that the emotional relationships with the family members listed above are different from the relationship with a partner. The offenders with schizophrenia that had attacked members of the family, more so than those with other victims, were characterized by an earlier beginning of the schizophrenia, had left school at a younger age, had had contact with a psychiatrist as a child, and were younger at the time of the first involuntary commitment and at the time of the index offense. Here again, the victim was principally the mother, just as in Estroff's findings. Another interesting finding was that the family members who became victims were injured more seriously than 'strange' victims. Our own research revealed that there was a tendency toward many more partners as the victims of patients with a personality disorder in maximum security institutions and many more treatment relations (caregivers, social workers, etc.) among the victims of psychotic patients held in maximum security (Goethals et al., 2008a).

Several authors (Monahan, 1992; Swanson et al., 1990; Swanson, 1993; Link et al., 1992; Hiday et al., 1999) have reported a relationship between substance abuse and violence. In a study by Steadman et al. (1998), 1000 patients discharged from a psychiatric hospital were compared with a random sample of 500 non-psychiatric inhabitants of the same neighborhood with regard to the influence of substance abuse. Here again, the patient group comprised various Axis I and Axis II diagnoses. There was no significant difference between the patient group and the controls in the prevalence of violence as long as there was no substance abuse in either group. Symptoms that were correlated with substance abuse increased the chances of violence significantly in both groups. During the first four 10-week follow-up periods, the patient group had higher percentages of symptoms due to alcohol or drug abuse (31.5% in the first follow-up period) than the control group (17.5%). The patient group committed more sexual offences, but was less frequently involved in armed violence or threats with a weapon. In both groups, the principal victims of violence were family members or friends and the incident usually occurred at home. This shows once again that family members and those close to the patient run a high risk of becoming a victim of violence. This study also confirmed the negative

influence of drug abuse on patients with a mental disorder (Räsänen et al., 1998; Arsénault et al., 2002; Putkonen et al., 2004).

Besides substance abuse, social functioning is viewed as an important risk factor. Two important parameters in a population of severe mentally ill (SMI) patients, namely the level of social functioning, measured as the GAF-score, and the frequency of social contact, were studied by Swanson et al. (1998) to see if these factors had an influence on their violent behavior. Most of these SMI-patients were psychotics, frequently associated with substance abuse, and were under ambulatory treatment (following involuntary hospitalization). In this article, two groups were defined on the basis of a GAF-score above or below 20. According to DSM-IV, a score of 20 or lower means some danger for oneself or others, occasional severe neglect of the personal hygiene, or severe limitations in communication. In the group with a score below 20, frequent social contact with family or friends was associated with an increased risk of violent behavior towards them. Frequent contact with others can thus bring about conflicts, stress and an increased risk of physical violence. In contrast, in the patients with less severe functional limitations, social contact was associated with a lower risk of violent behavior. For SMI-patients, therefore, social contact may be either positive or negative, depending on the GAF-score. The impact of psychiatric handicaps on violent behavior must therefore always be considered in a social context and never as an isolated fact.

Flannery et al. (1998) studied the characteristics of violent versus non-violent schizophrenic patients in a residential psychiatric setting in relation to their level of functioning. The study involved 847 hospitalized patients, both men and women. The New York State Level of Care Rating (LOC), which comprises a number of scales that measure a variety of social and personal adjustments, was used here. Within the violent group they made a distinction between interpersonal (physical or sexual aggression) and non-interpersonal (verbal threats or violence directed at property) violence. In the between-group analysis, violent patients displayed serious dysfunction in self-care and social adjustment, while the non-violent patients were more handicapped in the area of depression, restlessness and internal confusion. Within the group of violent patients (a within-group analysis) that displayed interpersonal and non-interpersonal violence, there were also similar findings of social dysfunction versus inner restlessness. The findings in the entire

violent group underlined the importance, for schizophrenics, of training in the area of ADL-functions and, for example, stress management. In connection with the decreased ability of psychotic patients to withstand stress, there were no fewer psychosocial stress factors up to 2 years before the TBS-offense in psychotic detainees in maximum security than in detainees with a personality disorder in maximum security. The psychotic detainees without a personality disorder did have more social problems and more difficulty in obtaining access to mental healthcare. Among the detainees with a personality disorder only, the problems were related mainly to money and relations (Goethals et al., 2008a).

A study on various risk factors for violence (Swanson, 2002) involved patients with a psychotic or major mood disorder. Almost half of the patient group (n=802) also displayed substance abuse. The one-year prevalence of serious violent behavior during the preceding year was 13% in this group. No single variable could be identified as the 'primary explanation' for violence in this large study group. Rather, the authors suggested the existence of specific subgroups within a psychiatric population that run an increased risk of violent behavior. These were: patients suffering from the long-term consequences of having been a victim of violence, patients with discordant relationships at home, and patients that were often homeless. The treatment of alcohol dependence or substance abuse, combined with suitable psychiatric treatment of the primary disorder, should be considered, whenever necessary, in all therapeutic interventions.

IV.3.4 Behavior problems in childhood and adolescence

Patients that develop a schizophrenic disorder and commit criminal offenses in adulthood already show prodromal signs in childhood and adolescence. It turns out that poor results at school, problems with attentiveness, a higher birth weight, and a greater head circumference are associated with a risk of violent behavior in adulthood (Cannon et al., 2002). This is confirmed by earlier studies (Schanda et al., 1992, among others). On the basis of data from the Dunedin study, Arseneault et al. (2000) concluded that psychotic symptoms during childhood are an important risk factor for violence in patients with a schizophreniform disorder. Physical aggression during childhood was also a risk factor, but to a smaller degree (Arseneault et al., 2003). Conviction for a violent offense in late adolescence also shows a significant

association with a future diagnosis of schizophrenia (Gosden et al., 2005). A usable classification of schizophrenic offenders into early and late starters was investigated by Tengström et al. (2001). In the group they studied, the discriminating variables were: poor grades at school, substance abuse by the parents, and a conduct disorder during childhood. Most of the patients that scored positively on the above were early starters.

What is the relationship between violent behavior and psychotic disorders in adolescents up to the age of 18 years? Violent behavior in psychotic patients was more often associated with social factors (a history of emotional or physical abuse, contact with psychiatric services, and prior criminal behavior) than with specific symptoms of the psychosis (Clare et al., 2000). The Dutch study by Vreugdenhil et al. (2004) also revealed no association between psychotic symptoms and the commitment of violent offenses or criminal recidivism.

In a longitudinal study by Cannon et al. (1990), schizophrenic patients with primarily negative symptoms had more internalizing behavior problems, such as passivity, loneliness, opposition and timidity, compared to those with mainly positive psychotic symptoms. In a retrospective study in which the problem scales of the CBCL (Child Behavior Checklist, Achenbach, 1991) were measured, psychomotor poverty and cognitive disorganization were positively related to 'withdrawn' and negatively related to 'anxious/depressed' in childhood (Baum et al., 1995). Neumann et al. (1995) described a group of schizophrenic patients that had more pronounced behavior problems, which had developed in early childhood and increased in severity with age, compared to another group of patients that did not have such problems. Rossi et al. (2000), on the other hand, reported that one group of schizophrenic patients initially had few behavior problems (thought problems and aggressive behavior), which increased over the years, while in the other group there were serious behavior problems from the first years of life, but these remained relatively stable until early adulthood. In this last group, the patients displayed more negative symptoms ('withdrawn' and 'anxious/depressed') on the CBCL. Finally, a Scottish study used the results of the CBCL to predict later schizophrenia (Miller et al., 2002). The problem scales that predicted later schizophrenia were 'withdrawn' and 'delinquent and aggressive behavior', but these predicted less accurately than the isolated psychotic characteristics immediately prior to the onset of schizophrenia.

No studies on a forensic population could be found. Recently, we carried out an exploratory study on behavior problems as measured by the CBCL (Goethals et al., 2008b). This study revealed that psychotic offenders displayed more aggressive and delinquent behavior during childhood and adolescence than psychotic patients in general psychiatry. These findings were in agreement with the international literature (Hodgins et al., 2005). Psychotic offenders with a personality disorder displayed much more externalizing behavior than psychotic offenders without a comorbid personality disorder. Finally, early starters displayed more externalizing behavior than late starters.

IV.4 Discussion

Studies into the time of the first offense in relation to the onset of psychosis, diagnosis and first admission have yielded a variety of results. In these studies, patients with both a psychotic disorder and a personality disorder have never been properly identified as a separate group that should be distinguished from psychotic disorders without a comorbid personality disorder.

Various definitions of the 'duration of untreated psychosis' or DUP are employed. The effect of a longer DUP on violence and criminal behavior has not yet been properly investigated either. Patients with a diagnosis of substance abuse enter the psychiatric care system at an earlier age. Moreover, when the substance abuse is not diagnosed until after the first contact, it takes longer before a diagnosis of schizophrenia is reached. When the offense is not committed until after the first contact with psychiatric care, the patients remain suspended in the legal system instead of the psychiatric system for a longer period (because of their conviction), so that it takes longer to reach a diagnosis.

Psychotic offenders clearly receive too little psychiatric care. Even though they are just as ill as the non-forensic patients (with regard to the positive symptoms of the psychosis), they do not receive the care they need. Our own study revealed that the delay between the first psychiatric admission and the index offense can be quite long, averaging 7-9 years (Goethals et al., 2007a). General psychiatry therefore has more than enough time to follow these patients, who are at risk of committing a

serious violent offense. In the evaluation of these high-risk patients, the DAE concept is promising. The significantly higher score on the DAE reflects the affect-deprived psychopathiform component in forensic patients. In a comparative study by Hodgins et al. (2006), forensic and non-forensic patients were compared in the context of the increased number of forensic beds. The increase in forensic beds appeared to be a response to violent behavior on the part of male patients with schizophrenia. This increase of forensic beds is a familiar situation in the Netherlands as well, just as in most other countries (Priebe et al., 2005). One of the possible explanations for this increase is that patients who move from general psychiatry into forensic psychiatry did not receive adequate care when they were treated in general psychiatry. The study by Hodgins et al. (2006) also showed that the patients who will become forensic patients in the future have more severe and more complex disorders than the other patients in general psychiatry. In addition to treating the psychosis, it is of crucial importance to treat the problems pertaining to the antisocial or psychopathiform dimension.

Interventions designed to reduce aggressive behavior and to improve empathy, a feeling of responsibility for one's own deeds, and pro-social skills are therefore necessary in relation to this psychopathic dimension, even though these have not been proven effective in these cases. It is possible that general psychiatry pays too little attention to these problems. In any case, these interventions have been developed and used with success for patients with personality disorders (McGuire, 1995). In connection with the considerable overlap between therapeutic interventions, those who implement the treatment program for psychotic detainees and detainees with a personality disorder should work closely together and communicate regarding their possibilities and limitations. Forensic psychiatry can be of significant assistance to general psychiatry in learning how to perform risk assessment and how to deal with the antisocial characteristics in certain psychotic patients, as severely psychotic individuals constitute a major danger for their families and friends. Dependence on members of the family and substance abuse increase the risk of violent behavior towards friends and acquaintances.

Externalizing behavior in childhood and adolescence is seen most often in future schizophrenics who later commit offenses. Early starters display more externalizing behavior than late starters. This is in agreement with what Moffitt and Caspi (2001)

wrote about life-course persistent antisocial pathways. Tengström et al. (2001) also found an early-onset conduct disorder in early starters. Problem children with a great deal of externalizing behavior should be followed clinically within the mental health service because they run a severe risk of becoming patients with serious psychiatric disorders.

IV.5 Conclusion

The course of a psychotic disorder depends on a variety of environmental factors. Some of these factors have a negative effect on the patient's prognosis, but there are probably also factors that influence the psychotic disorder in a positive direction. This review has in any case demonstrated that the course of a psychotic disorder should never be interpreted without also looking at these environmental factors.

For psychiatric therapy in practice, it is as important to eliminate the risk factors in the environment as to treat the individual patient. This requires multidisciplinary collaboration between the (forensic) psychiatrist and a variety of other disciplines, such as social workers and both intra- and extramural care-givers, in order to provide an accurate picture of these factors and to control them for the benefit of the psychotic patient.

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Chapter V

Behaviour problems in childhood and adolescence in psychotic offenders

Goethals, K., Willigenburg, L., Buitelaar, J., & van Marle, H. (in press)

Criminal Behaviour and Mental Health.

V.1 Introduction

Patients who develop a schizophrenic disorder and commit criminal offences in adulthood already show prodromal signs in childhood and adolescence, which may include poor results at school, problems with attentiveness, a higher birth weight, and a greater head circumference are associated with a risk of violent behaviour in adulthood (Cannon et al., 2002; Schanda et al., 1992; Heads & Taylor, 1997). Using data from the Dunedin birth cohort study, Arseneault et al. (2000) found two groups of childhood factors explaining violence in patients with a schizophreniform disorder: paranoid ideation and conduction disorder. Conviction for a violent offence in late adolescence shows a significant association with a future diagnosis of schizophrenia (Gosden et al., 2005). A usable classification of schizophrenic offenders into early and late starters was investigated by Tengström et al. (2001). In the group they studied, the discriminating variables were: poor grades at school, substance abuse by the parents, and a conduct disorder during childhood. Most of the patients who scored positively had started to offend at an early age. Hodgins et al. (2005) in a multicentre study showed that conduct disorder was associated with criminality and substance abuse that begin in adolescence and persisted during the entire lifespan. This conduct disorder was distinguishable as a comorbid disorder and not the result of abnormalities associated with the developing schizophrenia.

What is the relationship between violent behaviour and psychotic disorders in adolescents up to the age of 18 years? Violent behaviour in psychotic juveniles was more often associated with social factors (a history of emotional or physical abuse, contact with psychiatric services, and prior criminal behaviour) than with specific symptoms of the psychosis (Clare et al., 2000). The Dutch study by Vreugenhil et al. (2004) also revealed no association between psychotic symptoms and violent offences or criminal recidivism.

We would like to call attention to specific behaviour problems and their link with schizophrenia as measured by the Child Behavior Checklist (CBCL) (Achenbach, 1991). In a longitudinal study by Cannon et al. (1990) found that schizophrenic patients with primarily negative symptoms had more internalising behaviour problems, such as passivity, loneliness, opposition and timidity, compared to those with mainly positive psychotic symptoms. In a retrospective study in which the

problem scales of the CBCL were measured, psychomotor poverty and cognitive disorganisation were positively related to being 'withdrawn' and negatively related to 'anxious/depressed' in childhood (Baum et al., 1995). Neumann et al. (1995) described a group of schizophrenic patients with more pronounced behaviour problems, which had developed in early childhood and increased in severity with age, compared with a group free of such problems. Rossi et al. (2000), on the other hand, reported that one group of schizophrenic patients initially had few behaviour problems (thought problems and aggressive behaviour), which increased over the years, while in the other group there were serious behaviour problems from the first years of life, but these remained relatively stable until early adulthood. In this last group, the patients displayed more negative symptoms ('withdrawn' and 'anxious/depressed') on the CBCL. Finally, a Scottish study used the results of the CBCL to predict later schizophrenia (Miller et al., 2002). The problem scales that predicted later schizophrenia were 'withdrawn' and 'delinquent and aggressive behaviour', but these predicted less accurately than the isolated psychotic characteristics immediately prior to the onset of schizophrenia. We have found no studies with an offender patient population.

In our study, we examined the utility of the CBCL in an offender patient sample. We described them in these terms and asked the following research questions: Are certain behaviour problems in youth encountered more often in violent psychotic offenders than in non-delinquent psychotic patients in general psychiatry? More specifically, are 'withdrawn' and 'delinquent and aggressive behaviour' predictors of schizophrenia in a forensic population? When comorbid personality disorder is identified in violent psychotic offenders, is this associated with more externalising behaviour in childhood and adolescence?

We had four hypotheses for a TBS population in the Netherlands:

1. During childhood and adolescence, more externalising behaviour would be seen in psychotic offenders with a personality disorder than in non-offender patients with psychosis, and
2. than in psychotic offenders without a personality disorder.
3. Behaviour problems during childhood and adolescence are associated with the later development of a personality disorder, whether or not there is also a psychotic disorder.
4. Early starters display more externalising behaviour than late starters.

V.2 Method

V.2.1 Sample

The Dutch TBS system (indefinite detention under the Entrustment Act) is intended for mentally ill offenders who have committed a serious violent offence. Three groups of male offenders were recruited from three clinics in this system (the Pompe Foundation, Nijmegen; 'De Kijvelanden' in Poortugaal; and the GGZ Eindhoven and 'De Kempen' in Eindhoven), and one group of male non-offender patients was recruited from a long-stay general psychiatry ward in Nijmegen (minimum duration of admission 2 years, and the most recent admission involuntary). Group A (n=35) – of psychotic offenders without a personality disorder, C (n=35) – psychotic offenders with a personality disorder, and D (n=35) – non-psychotic offenders with a personality disorder, were all drawn from the TBS system. Group B (n=32) consisted of non-offender patients with psychosis, but without a personality disorder. In order to qualify for a psychotic classification in our study, patients had to have an Axis I psychotic disorder according to the DSM-IV (American Psychiatric Association, 1994, schizophrenia, schizoaffective disorder, delusional disorder, and psychotic disorder NOS). A psychotic disorder due to substance abuse was not included. Bipolar disorders were not encountered in this population. The group of 'patients with a personality disorder' included only those with a cluster B type (according to DSM-IV), such as an antisocial and/or narcissistic personality disorder. Of the psychotic patients, 86.3% (n=102) had schizophrenia, 1% had a schizoaffective disorder, 2% a delusional disorder, and 10.8% a psychotic disorder NOS. The distribution of personality disorders in groups C and D was 40% antisocial, 14.3% narcissistic, 17.1% borderline, and 28.6% personality disorder NOS. A typical finding in the study group was the frequent co-occurrence of substance abuse. Among the psychotic patients this was mainly cannabis, while among those with a personality disorder it was mainly alcohol, and to a lesser extent cocaine or amphetamines.

For the purposes of our study, 'severe violent behaviour' included (attempted) murder, manslaughter, severe battery, wounding and arson. These accounted for 9.4%, 27.0%, 16.8% and 9.5% of the offences in the offender samples. Sexual offences were not included.

The sample was randomly selected from all men resident in one of the forensic clinics and convicted of a violent offence as listed; those in group B were selected randomly from among involuntary patients in the general psychiatric ward.

The average age at the time the data were collected was 38.8 years (SD 8.3), most were European (62%), single (77.4%) and unemployed (89.1%) at the time of the index offence. For half of all the patients the highest level of education completed was primary school.

V.2.2. Study strategy

Case note data were used to compare the four groups. The anamnestic, diagnostic and psychological test data were retrieved retrospectively from reports to the court and intake reports. In the case of the control group B, the medical files were examined, with special attention to the prior history.

V.2.3 Instruments

Clinical diagnoses were standardised, using all five axes of the DSM-IV, by a multi-disciplinary team of psychiatrists and psychologists, mostly in the Observation Clinic of the Ministry of Justice (Pieter Baan Centre, Utrecht), where all offenders had stayed for several months. In general, one could say that the psychiatrist draws conclusions as to the presence of absence of psychiatric illnesses, with their symptoms and the resulting limitations, while the psychologist draws conclusions as to the abnormalities in character structure and behaviour (van Marle, 2000). The diagnoses were reassessed in the hospitals to which the men were admitted as convicted offenders. An MMPI-2 was available for each man to aid personality disorder diagnosis.

The Child Behavior Checklist (CBCL) for 4 to 18 years of age (Achenbach, 1991) was used in order to identify precursors of delinquent behaviour, and supplemented with a list of sociodemographic, familial psychiatric, and criminological variables that was compiled on the basis of a study of the current literature in this field. The CBCL is a questionnaire that must be filled in by the parents or teachers; they are generally well-informed as to how the child is functioning. The CBCL can be

scored in two parts: one that measures competence and one that measures behaviour problems. The behaviour problems part is subdivided into 9 syndrome scales: withdrawn, somatic complaints, anxious/depressed, social problems, thought problems, attention problems, sex problems, delinquent behaviour, and aggressive behaviour. The first three scales measure the internalising behaviour and the last two measure the externalising behaviour. The total problem score or the score per syndrome is obtained by taking the sum of the scores on a 3-point scale. In the present study, only the behaviour problems part was used. This part consists of 118 specific questions about behaviour problems and/or emotional problems requiring attention from parents and caregivers. The Dutch translation is reliable and valid (Verhulst et al., 1996). In this study, the CBCL 4-18 was scored on the basis of data in the patients' records. These records contained reports of conversations with the parents or important educators of the patient regarding the patient's younger years. As mentioned above, the history during childhood and adolescence was also recorded from informants in the Pieter Baan Centre. In a few cases, reports from the probation and after-care service or other social service institutions were also available.

V.2.4 Procedure

The study was approved by the Medical Ethics Committee of the University Medical Centre Radboud (Nijmegen), which concluded that informed consent from the patients was unnecessary. For the patients who were recruited from the GGZ Eindhoven and 'De Kempen', the management decided that written informed consent was required for insight into their medical files. This institution falls under the regular Dutch legislation governing institutions for mental health care (WGBO). Their attending physician was assured that none of the patients would have to take part in conversations or further investigations, and that their data would be anonymised. Consent was obtained from all but three patients approached.

The variables were scored by psychology students who were blind to the patients' diagnoses when rating the childhood behaviour by means of the CBCL, avoiding the possibility that observer bias would colour the ratings. In order to determine the inter-rater reliability, 10 randomly chosen files per group (total of 40) were scored for a second time. For the scores on the CBCL (continuous variables), the Interclass

Correlation Coefficient (ICC) (Shrout and Fleiss, 1979) was calculated. Good to excellent ICCs were found (scores between .720 and .977).

V.2.5 Statistical methods

Data were analysed using the SPSS version 14.0. Statistical analysis included repeated-measures MANOVA, chi-square tests or Fisher's exact test (when expected cell frequency < 5) for categorical variables, and a t-test for continuous variables. A hierarchic cluster analysis was used to divide the total group of patients into two clusters. The aim of this latter analysis was to classify patients into relatively homogeneous groups, so that all patients would display a high degree of similarity with patients in the same group and a low degree of similarity with the patients in the other group. To achieve this, an algorithm was used that starts with each patient in a separate cluster and combines clusters until only one is left. Cluster analysis determines the similarity on the basis of the value of the variables for each patient, in this case the scores on the CBCL (SPSS Base 9.0 User's Guide, 1999).

V.2.6 Missing data on behaviour problems

Data on behaviour problems were lacking in the files for various patients (group A: 14 of the 35 patients, group B: 16 of the 32, group C: 5 of the 30, and group D: 3 of the 35, for a total of 38 files). The highest percentage of missing data was for the non-delinquent psychotic patients in general psychiatry. It is known that the childhood and adolescent history is given little attention in general psychiatry, as long as there are no serious behaviour problems or involvement of police or judiciary. To check for any other systematic bias in missing data, we compared patients for whom data were lacking and those for whom all data were present on four sociodemographic variables: age, civil status, children, and ethnic origin.

The results for the entire group revealed significant differences for age (the patients for whom data were lacking were significantly older, $t(1,135)=2.909$, $p<.01$) and for ethnic origin (there were more non-Europeans in the group for whom data were lacking, $\chi^2(1)=6.689$, $p<.01$). The likely explanation for this is that less information was obtainable on the childhood of older and non-European patients. The analysis of each group individually revealed a significant difference for age only in groups A

($t(1,33)=2.508$, $p=.017$) and D ($t(1,33)=2.052$, $p=.039$). No differences were found with regard to ethnicity.

Final groups, therefore, consisted of 21 offender patients with psychosis and no personality disorder, 25 offender patients with psychosis and personality disorder, 32 offender patients with personality disorder and no psychosis and 16 general psychiatric patients with psychosis only.

V.3 Results

The distribution of CBCL problem scale scores by patient group is presented in Table 1. There was a significant difference between the four groups on the problem scale 'delinquent behavior' ($F(3,92)=5.041$, $p=.003$). This was mainly accounted for by the significant difference between the psychotic offenders with a personality disorder and psychotic patients in general psychiatry in the age ranges 7 to 12 years ($F(1,43)=4.034$, $p=.051$) and 13 to 18 years ($F(1,42)=8.070$, $p=.007$). The difference between the four groups on the aggressive behavior scale just failed to reach significance ($F(3,91)=2.435$, $p=.070$). For this reason, no further analysis was done with this scale. There were significant differences between the four groups on the 'attention problems' scale ($F(3,92)=6.177$, $p=.001$). Our first hypothesis was therefore supported.

No significant differences were found between the groups on the remaining problem scales: 'withdrawn', 'somatic complaints', 'anxious/depressed', 'sex problems', 'social problems' and 'thought problems'.

Our second hypothesis can be rejected: significant differences between psychotic offenders with and without a personality disorder were not found on the problem scale 'delinquent behavior'.

Next, a hierarchic cluster analysis was done to investigate whether relatively homogeneous patient groups (clusters) could be formed on the basis of the score on the CBCL. Here, a problem scale was always used as the dependent variable with the age ranges 0-6 years, 7-12 years and 13-18 years as the within subject factor and the cluster (1 or 2) as the between subject factor. The findings are

Table I Scores on the problem scales of the CBCL per patient group.

Problem scales	group A			group B			group C			group D			Analysis
	n	M	SD	n	M	SD	n	M	SD	n	M	SD	
<i>withdrawn</i>	21	0.29	0.12	16	0.29	0.14	30	0.29	0.10	32	0.10	0.10	ns
<i>somatic complaints</i>	21	0.02	0.01	16	0.00	0.01	30	0.00	0.01	32	0.00	0.01	ns
<i>anxious/depressed</i>	21	0.16	0.10	16	0.27	0.11	30	0.25	0.09	32	0.28	0.08	ns
<i>delinquent behaviour</i>	21	0.64	0.21	16	0.42	0.24	30	1.28	0.19	32	1.33	0.17	F(3.92) = 5.041 **
7-12, B-C				16	0.31	0.79	30	1.15	1.59				F(1.43) = 4.034 *
13-18, B-C				16	0.88	0.96	30	2.33	1.86				F(1.42) = 8.070 **
7-12, B-D				16	0.31	0.79				32	1.28	1.46	F(1.46) = 6.066 *
13-18, B-D				16	0.88	0.96				32	2.34	1.84	F(1.46) = 8.897 **
<i>aggressive behaviour</i>	21	0.59	0.26	16	0.58	0.30	30	1.12	0.23	32	1.33	0.21	F(3.91) = 2.435, p = 0.070
<i>sex problems</i>	21	0.00	0.02	16	0.00	0.03	30	0.03	0.02	32	0.05	0.02	ns
<i>social problems</i>	21	0.21	0.12	16	0.29	0.14	30	0.53	0.11	32	0.50	0.10	ns
<i>thought problems</i>	21	0.02	0.03	16	0.04	0.03	30	0.05	0.02	32	0.02	0.02	ns
<i>attention problems</i>	21	0.14	0.14	16	0.02	0.16	30	0.42	0.12	32	0.73	0.11	F(3.92) = 6.117 ***
0-6, A-D	21	0.05	0.22							32	0.75	0.92	F(1.51) = 11.836 ***
7-12, A-D	21	0.10	0.30							s	0.78	0.94	F(1.51) = 10.394 **
0-6, B-D				16	0.00	0.00				32	0.75	0.92	F(1.46) = 10.615 **
7-12, B-D				16	0.00	0.00				32	0.78	0.94	F(1.46) = 10.903 **
13-18, B-D				16	0.06	0.25				32	0.66	0.94	F(1.46) = 6.144 *

group A : psychotic offenders without a personality disorder

group B : non-offender patients with psychosis and without a personality disorder

group C : psychotic offenders with a personality disorder

group D : non-psychotic offenders with a personality disorder

* p < .050

** p < .010

*** p < .001

summarised in table 2. In all age ranges, scores on the problem scales 'delinquent behavior' ($F(1.93)=35.401$, $p<.001$), 'aggressive behavior' ($F(1.93)=173.189$, $p<.001$), and 'attention problems' ($F(1.93)=17.435$, $p<.001$) were higher in cluster 2. The significant differences were, however, strictly between clusters, and not according to a standard. The score for internalising behaviour was not significantly different between clusters. This applies to all three of the problem scales 'withdrawn', 'somatic complaints' and 'anxious/depressed'.

Table II Scores on the problem scales of the CBCL in cluster 1 and cluster 2.

Problem scales	Cluster 1 (n=69)		Cluster 2 (n=26)		Analysis
	M	SD	M	SD	
withdrawn	0.27	0.07	0.10	0.11	ns
somatic complaints	0.01	0.00	0.00	0.01	ns
anxious/depressed	0.25	0.06	0.23	0.09	ns
<i>delinquent behaviour</i>	0.68	0.11	1.87	0.17	$F(1.93) = 35.401$ ***
0 - 6 years	0.10	0.35	0.69	0.93	$F(1.93) = 20.555$ ***
7 -12 years	0.33	0.68	2.19	1.67	$F(1.93) = 59.870$ ***
13 - 18 years	1.59	1.41	2.73	2.05	$F(1.93) = 24.394$ **
<i>aggressive behaviour</i>	0.39	0.09	2.56	0.14	$F(1.93) = 173.189$ ***
0 - 6 years	0.17	0.38	2.19	1.44	$F(1.93) = 115.489$ ***
7 - 12 years	0.32	0.53	3.00	1.13	$F(1.93) = 247.617$ ***
13 - 18 years	0.67	1.04	2.50	1.63	$F(1.93) = 42.214$ ***
sex problems	0.01	0.01	0.05	0.02	ns
social problems	0.44	0.07	0.36	0.11	ns
thought problems	0.03	0.01	0.03	0.02	ns
attention problems	0.24	0.08	0.83	0.12	$F(1.93) = 17.435$ ***
0 - 6 years	0.17	0.42	0.77	0.99	$F(1.93) = 17.039$ ***
7 - 12 years	0.25	0.50	0.88	1.03	$F(1.93) = 16.459$ ***
13 - 18 years	0.29	0.60	0.85	1.01	$F(1.93) = 10.960$ ***

** $p < .010$

*** $p < .001$

Cluster 1 (72.6%, N=69) contained 85.7% (N=18) of the psychotic offenders without a personality disorder and 87.5% (N=14) of the psychotic patients in general psychiatry. It also contained 69.2% (N= 18) of the psychotic offenders with a personality disorder and 59.4% (N=19) of the offenders with a personality disorder only. Cluster 2 (27.4%, N=26) contained 30.8% (N=8) of the psychotic offenders with a personality disorder and 40.6% (N=13) of the offenders with a personality disorder only. Furthermore, cluster 2 contained 14.3% (N=3) of the psychotic offenders without a personality disorder and 12.5% (N=2) of the non-delinquent psychotic patients in general psychiatry.

In summary, it can be concluded that cluster 1 comprised mainly psychotic disorders (about 85%) and that cluster 2 comprised mainly personality disorders (about 70%) ($\chi^2(3)=6.568$, $p=.087$). Significantly higher scores are obtained in cluster 2 (mainly psychotic offenders with a personality disorder and non-psychotic offenders with a personality disorder) for externalising behaviour and attention problems in youth. Behaviour problems during childhood and adolescence determine the later development of a personality disorder, whether or not a psychotic disorder is also present. Hypothesis 3 was therefore supported.

Early starters are patients who had their first conviction before the age of 18, while late starters are those who had their first conviction after their 18th birthday. We first investigated whether there was a significant difference between psychotic offenders with and without a personality disorder with regard to the ratio of early to late starters, with problem scale as the dependent variable, age range, as before, as the within subject factor and group (early/late starter) as the between subject factor. A summary of the results is shown in table 3.

In group A, 8 patients (22.86%) were early starters and 27 patients (77.14%) were late starters; in group C, 18 patients (51.43%) were early starters and 17 patients (48.57%) were late starters, $\chi^2(1)=6.119$, $p=.013$. Psychotic offenders without a personality disorder were therefore mainly late starters, in contrast to the group of psychotic offenders with a personality disorder, for whom early and late onset of offending was more evenly distributed. Early starters had significantly higher scores on the problem scale 'delinquent behavior' ($F(1.78)=9.948$, $p=.002$). Significantly higher scores for early starters were also found in the age ranges 7 to 12 years and

Table III Scores on the problem scales of the CBCL for early starters and late starters.

Problem scales	Early starters			Late starters			Analysis		
	n	M	SD	n	M	SD	F	df	p
<i>withdrawn</i>	42	0.23	0.09	39	0.20	0.09	ns		
<i>somatic complaints</i>	42	0.00	0.01	38	0.01	0.01	ns		
<i>anxious/depressed</i>	42	0.20	0.07	38	0.28	0.07	ns		
<i>delinquent behaviour</i>	42	1.47	0.15	38	0.76	0.16	F(1.78) = 9.948 **		
0 - 6 years	42	0.38	0.80	38	0.21	0.47	ns		
7 - 12 years	42	1.43	1.67	38	0.45	0.72	F(1.81) = 11.117 ***		
13 - 18 years	42	2.60	1.88	38	1.63	1.38	F(1.81) = 7.062 **		
<i>aggressive behaviour</i>	41	1.37	1.88	38	0.74	0.20	F(1.77) = 5.419 *		
0 - 6 years	41	0.93	1.29	38	0.55	1.13	ns		
7 - 12 years	41	1.54	1.60	38	0.79	1.21	F(1.77) = 5.416 *		
13 - 18 years	41	1.63	1.50	38	0.87	1.21	F(1.78) = 5.613 *		
<i>sex problems</i>	42	0.02	0.02	38	0.04	0.02	ns		
<i>social problems</i>	42	0.36	0.09	38	0.52	0.09	ns		
<i>thought problems</i>	42	0.02	0.02	38	0.04	0.02	ns		
<i>attention problems</i>	42	0.60	0.11	38	0.33	0.11	ns		

* $p < .050$ ** $p < .010$ *** $p < .001$

13 to 18 years ($F_{1.81}=11.117$, $p=.001$), and ($F_{1.81}=7.062$, $p=.009$), respectively. The early starters also had significantly higher scores on the problem scale 'aggressive behavior' overall ($F_{1.77}=5.419$, $p=.023$), and specifically in the age ranges 7 to 12 years and 13 to 18 years ($F_{1.77}=5.416$, $p=.023$; $F_{1.78}=5.613$, $p=.020$, respectively). These findings confirmed our fourth hypothesis.

V.4 Discussion

Psychotic offenders with a personality disorder score displayed more aggressive and delinquent behaviours during childhood and adolescence than did psychotic

patients in general psychiatry. Examples of delinquent behaviour include skipping school and using drugs, while examples of aggressive behaviour are hitting others and frequent fighting. These findings are in agreement with the international literature (Hodgins et al., 2005). Higher scores for delinquent and aggressive behaviour on the CBCL seem to be predictors of a serious psychiatric disorder, such as a psychotic disorder with a comorbid personality disorder or a severe personality disorder (groups C and D in this study). These findings should be tested further by setting up a prospective study.

Offenders with a (comorbid) personality disorder have higher scores for externalising behaviour. This is in agreement with the findings of Gosden et al. (2005), among others. Psychotic offenders with a personality disorder had shown much more externalising behaviour in their youth than psychotic offenders without a comorbid personality disorder. This comorbidity with a personality disorder is difficult to assess in the literature because distinction is rarely made between psychotic patients with or without a personality disorder. Our findings constitute a reason to identify such comorbidity clearly. There is no difference between the groups as far as internalising behaviour is concerned. It is possible that these internalising symptoms (anxious/depressed, withdrawn, and somatic complaints) are under-reported in the psychotic patients in general psychiatry and the psychotic offenders without a personality disorder.

Early starters display more externalising behaviour than late starters. This is in agreement with what Moffitt and Caspi (2001) wrote about life-course persistent antisocial pathways. Tengström et al. (2001) also found an early-onset conduct disorder in early starters. What we found in a population of TBS-detainees is thus in agreement with the international literature.

A few methodological limitations must be addressed here. First of all, this was a multicentre, retrospective study, based on case note material obtained for clinical rather than research purposes. Next, for the CBCL, we based the scores on the actuarial data from case note material. However, it should be noted that good to excellent interclass correlation coefficients were found. Finally, the small numbers of patients and the missing data on behaviour problems may limit the conclusions that can be drawn here.

In conclusion, we can state that the Child Behavior Checklist (CBCL) can be used in an offender population to investigate relationships between early behavioural problems and personality disorder comorbid with psychosis in adults. It is arguable that further prospective research will be necessary to test our preliminary finding adequately, using a larger sample. By definition, if people have become offenders, an examination of their childhood behaviours would necessarily be, to an extent, retrospective. Prospective childhood cohort studies, however, have their limitations, as they can only ever include small numbers of people of interest to the forensic mental health professional. It is arguable that children with a great deal of externalising behaviour should be offered attention from mental health services because they run a severe risk of becoming patients with serious psychiatric disorders.

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Chapter VI

Targets of violence and psychosocial problems in psychotic offenders detained under the Dutch entrustment act (TBS).

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VI.1 Introduction

During the rehabilitation in the community of Dutch offenders with a mental disorder previously detained under the Dutch Entrustment Act (TBS), it is very important to maintain the quality of their psychosocial network. To prevent recidivism it is necessary to provide a certain amount of stability in the psychosocial factors and the environment of these patients (Lögberg et al., 2004; Hiday et al., 1999). We know from the stress-vulnerability model (Ciompi, 1985) that their ability to withstand stress is limited. It is important, in this connection, to analyse the relationships they have with the victims of their crimes, and to know the level of their social functioning, their social stress and substance abuse. The latter is a very frequent co-morbid disorder leading to high levels of aggression (Modestin & Würmle, 2005; Phillips, 2000; Tiihonen et al., 1997; Modestin & Ammann, 1995).

In this exploratory study, we intend to analyse the relationships (with partners, relatives and caregivers) at the time of the offence, measure the impact of acute or chronic stress factors preceding the offence, and determine the level of social functioning at the time of the report to the court. Certain environmental characteristics prior to the offence, such as the absence of psychiatric care, will also be described. In the Dutch TBS-system, both psychiatric patients with a personality disorder and those with a psychosis are detained, and in a study of their rehabilitation it is important to compare the psychotic TBS-detainees with those that have personality disorders only. The psychotic TBS-detainees that also have a personality disorder must be studied as a separate group. The consequence of the impact of a personality disorder on a psychosis might be that this co-morbid group has a closer resemblance to the TBS-detainees with a personality disorder as far as the psychosocial and environmental problems are concerned. In most studies, psychotic delinquents with or without a personality disorder are considered as one group. In this exploratory study, attention will be given to the combination of a psychosis and a personality disorder.

VI.2 Theoretical background

Before reporting our own findings, we will examine the recent literature to see what is known about the social network of patients with a Major Mental Disorder.

Substance abuse and social functioning will also be viewed in this light, because these are important markers of the quality of their social network.

Estroff et al. (1994) followed 169 patients with a major mental disorder and 59 relatives of these patients for 18 months after discharge from a psychiatric hospital. A variety of disorders was included here, such as schizophrenia, major mood disorders, personality disorders, and psychoses 'not otherwise specified'. The focus was on violent behaviour or threats of violence directed at the relatives. Approximately one-third of the patients were violent or threatened the relatives with violence during the follow-up period. Schizophrenics were especially violent compared to the patients with other disorders; on the other hand, threats of violence were not made any more often by these patients than by patients with other disorders. Financial dependence of the patient on his family was associated with more violent threats and behaviour. More than half of the victims of violence were relatives of the patients, especially mothers with a patient living in the same home. The top five on the list of victims of violence were, in descending order: mothers, husbands or wives, other relatives, children, and finally fathers. It is striking, in this connection, that the violent patients perceived their relatives to be threatening, but did not consider themselves to be threats. Close social relationships were an important factor in increasing the chances of becoming a victim.

In a later publication by Estroff et al. (1998), a 'key cluster' of risk factors is defined that increases the chances of becoming a victim of violence: a mother or first-degree relative that lives together with a patient that is financially dependent, has been diagnosed with schizophrenia, abuses drugs, and makes little or no use of mental health care.

Nordström & Kullgren (2003) studied male forensic schizophrenics that had attacked members of the family. The diagnosis was thus limited to schizophrenia and there had to have been at least one violent offence, followed by involuntary forensic-psychiatric treatment. 'Family members' was defined as: parents, relatives, brothers and sisters, and grandparents; the emphasis was thus on kinship. Partners living in the same household were not considered in this study, on the assumption that the emotional relationships with the family members listed above are different from the relationship with a partner. The schizophrenics that had attacked members

of the family, more so than those with other victims, were characterised by an earlier beginning of the schizophrenia, had left school at a younger age, had had contact with a psychiatrist as a child, and were younger at the time of the first involuntary commitment and at the time of the index offence. Here again, the victim was principally the mother, just as in Estroff's findings. Another interesting finding was that the family members who became victims were injured more seriously than 'strange' victims.

Several authors (Monahan, 1992; Swanson et al., 1990; Swanson, 1993; Link et al., 1992; Hiday et al., 1999) have reported a relationship between substance abuse and violence. In a study by Steadman et al. (1998), 1000 patients discharged from a psychiatric hospital were compared with a random sample of 500 non-psychiatric inhabitants of the same neighbourhood with regard to the influence of substance abuse. Here again, the patient group comprised various Axis I and Axis II diagnoses. There was no significant difference between the patient group and the controls in the prevalence of violence as long as there was no substance abuse in either group. Symptoms that were correlated with substance abuse increased the chances of violence significantly in both groups. During the first four 10-week follow-up periods, the patient group had higher percentages of symptoms due to alcohol or drug abuse (31.5% in the first follow-up period) than the control group (17.5%). The patient group committed more sexual offences, but was less frequently involved in armed violence or threats with a weapon. In both groups, the principal victims of violence were family members or friends and the incident usually occurred at home. This shows once again that family members and those close to the patient run a high risk of becoming a victim of violence. This study also confirmed the negative influence of drug abuse on patients with a mental disorder (Räsänen et al., 1998; Arsenault et al., 2002; Putkonen et al., 2004).

Besides substance abuse, social functioning is viewed as an important risk factor. Two important parameters of a population of severe mentally ill (SMI) patients, namely the level of social functioning, measured as the GAF-score, and the frequency of social contact, were studied by Swanson et al. (1998) to see if these factors had an influence on their violent behaviour. Most of these SMI-patients were psychotics, frequently associated with substance abuse, and were under ambulatory treatment (following involuntary hospitalisation). In this article, two groups were

defined on the basis of a GAF-score above or below 20. According to DSM-IV, a score of 20 or lower means some danger for oneself or others, occasional severe neglect of the personal hygiene, or severe limitations in communication. In the group with a score below 20, frequent social contact with family or friends was associated with an increased risk of violent behaviour towards them. Frequent contact with others can thus bring about conflicts, stress and an increased risk of physical violence. In contrast, in the patients with less severe functional limitations, social contact was associated with a lower risk of violent behaviour. For SMI-patients, therefore, social contact may be either positive or negative, depending on the GAF-score. The impact of psychiatric handicaps on violent behaviour must therefore always be considered in a social context and never as an isolated fact.

Flannery et al. (1998) studied the characteristics of violent versus non-violent schizophrenic patients in a residential psychiatric setting in relation to their level of functioning. The study involved 847 hospitalised patients, both men and women. The New York State Level of Care Rating (LOC), which comprises a number of scales that measure a variety of social and personal adjustments, was used here. Within the violent group they made a distinction between interpersonal (physical or sexual aggression) and non-interpersonal (verbal threats or violence directed at property) violence. In the between-group analysis, violent patients displayed serious dysfunction in self-care and social adjustment, while the non-violent patients were more handicapped in the area of depression, restlessness and internal confusion. Within the group of violent patients (a within-group analysis) that displayed interpersonal and non-interpersonal violence, there were also similar findings of social dysfunction versus inner restlessness. The findings in the entire violent group underlined the importance, for schizophrenics, of training in the area of ADL-functions and, for example, stress management.

A study on various risk factors for violence (Swanson, 2002) involved patients with a psychotic or major mood disorder. Almost half of the patient group (n=802) also displayed substance abuse. The one-year prevalence of serious violent behaviour during the preceding year was 13% in this group. No single variable could be identified as the 'primary explanation' for violence in this large study group. Rather, they suggested the existence of specific subgroups within a psychiatric population that run an increased risk of violent behaviour. These were: patients suffering from

the long-term consequences of having been a victim of violence, patients with discordant relationships at home, and patients that were often homeless. The treatment of alcohol dependence or substance abuse, combined with suitable psychiatric treatment of the primary disorder, should be considered, whenever necessary, in all therapeutic interventions.

In summary, it may be said that severely psychotic individuals constitute a major danger for their families and friends. Dependence on members of the family and substance abuse increase the risk of violent behaviour towards friends and acquaintances. The questions addressed in the present study are: do these factors (social functioning and quality of the network) play the same role outside of the population of Dutch TBS-detainees? Are there differences between detainees with a psychotic disorder, a personality disorder or a combination of both? Is the impact of psychosocial stress factors on violent behaviour more important in psychotic TBS-detainees, compared to personality disordered TBS-detainees?

The purpose of this exploratory study was to find an answer to these questions. In this connection, we will address three hypotheses:

1. The victims of psychotic TBS-detainees are more likely than the victims of TBS-detainees with a personality disorder to be a relative, friend or acquaintance;
2. At the time of hospitalisation or the report to the court, the GAF-score is lower in psychotic TBS-detainees than in the psychotic inmates of a general psychiatric hospital. Psychotic TBS-detainees with a personality disorder have a higher GAF-score than psychotic TBS-detainees without a personality disorder;
3. In connection with the decreased ability of psychotic patients to withstand stress, there are fewer psychosocial stress factors up to 2 years before the offence in psychotic TBS-detainees than in TBS-detainees with a personality disorder.

VI.3 Method

VI.3.1 Sample

Four groups of patients (total N = 137) were created. Three of the four groups consisted of violent offenders. The Dutch TBS system (indefinite detention under

the Entrustment Act) is intended for mentally ill offenders that have committed a serious violent offence. Group A (n=35) comprised psychotic offenders without a personality disorder. Group B (n=32) comprised non-delinquent psychotic patients in general psychiatry without a personality disorder. These patients were between the ages of 20 and 50 and were recruited from a long-stay ward (minimum duration of admission 2 years and the last admission was involuntary). Group C (n=35) comprised psychotic offenders with a personality disorder, and group D (n=35), finally, comprised non-psychotic offenders with a personality disorder.

The forensic patients were recruited from three forensic clinics, i.e. the Prof. W.P.J. Pompe Foundation in Nijmegen, 'De Kijvelanden' in Poortugaal, and the GGZ Eindhoven (Eindhoven Mental Health Service) and 'De Kempen' in Eindhoven. The control group comprised psychotic patients from the GGZ Nijmegen. By 'psychotic patients' is meant: patients with an Axis I psychotic disorder according to the DSM-IV (American Psychiatric Association, 1994), such as schizophrenia, schizoaffective disorder, delusional disorder, and psychotic disorder NOS. A psychotic disorder due to substance abuse was not included in this study. Bipolar disorders were not encountered in this population. The group of 'patients with a personality disorder' included only those with a disorder of the cluster B type (according to the DSM-IV), such as an antisocial and/or narcissistic personality disorder. Of the psychotic patients, 86.3% (n=102) had schizophrenia, 1% had a schizoaffective disorder, 2% a delusional disorder, and 10.8% a psychotic disorder NOS. The following personality disorders were encountered in groups C and D: 40% antisocial, 14.3% narcissistic, 17.1% borderline, and 28.6% personality disorder NOS (cluster B characteristics). A typical finding in the study group was the frequent occurrence of co-morbid substance abuse. Among the psychotic patients this was mainly cannabis, while in those with a personality disorder it was mainly alcohol and to a lesser extent cocaine or amphetamines.

By 'severe violent behaviour' we mean, for example, (attempted) murder, (attempted) manslaughter, severe battery and wounds with (permanent) injury, and arson. These accounted for 9.4%, 27.0%, 16.8% and 9.5% of the offences within the studied population, respectively. Sexual offences are not included in this study because the aetiology of sexual offences is different for psychotic offenders and offenders with a personality disorder (Drake & Pathé, 2004; Smith, 2000).

The forensic patients from the three clinics were selected at random. However, they were all males between the ages of 20 and 50, and they had all committed a violent offence. The psychotic patients in control group B were selected on the basis of the fact that their last admission was involuntary.

The average age at the time the data were collected was 38.8 years (SD 8.3). The ethnic origin was usually European (62%). Most of the patients were single (77.4%) and unemployed (89.1%) at the time of the index offence. For half of all the patients, the highest level of education completed was primary school.

VI.3.2 Study strategy

Existing data were used to compare the four groups. The anamnestic, diagnostic and psychological test data were retrieved retrospectively from reports to the court and intake reports. In the case of the control group B, the medical files were examined, with special attention to the prior history.

VI.3.3 Instruments

Clinical assessment of the diagnoses (five axes of the DSM-IV) was standardised by a multidisciplinary team of psychiatrists and psychologists, mostly in the Observation Clinic of the Ministry of Justice (Pieter Baan Centre, Utrecht). All offenders had to stay there for several months. In general, one could say that the psychiatrist draws conclusions as to the presence of absence of psychiatric illnesses, with their symptoms and the resulting limitations, while the psychologist draws conclusions as to the abnormalities in character structure and behaviour (van Marle, 2000). The diagnoses were reassessed carefully in the hospitals to which the offenders were admitted. For the assessment of personality disorders (Axis-II of the DSM-IV), a MMPI-2 was available for each psychotic or non-psychotic patient.

In order to make the psychosocial factors up to 2 years before the offence or hospitalisation operational, in addition to a list of sociodemographic, psychiatric and criminological variables that was compiled by studying the current literature in this field, use was made of the following instruments:

(a) psychosocial stress factors, measured on Axis IV of the DSM-IV, as well as

relevant V-codes (for example, termination of the relationship by the partner), may affect the diagnosis, treatment and prognosis of mental disorders (Axes I and II). The period of time during which these stress factors were assessed was up to 2 years before the index offence (or before the last admission for the B-group);

(b) the GAF-score as measured on Axis V of the DSM-IV.

VI.3.4 Procedure

The study was assessed by the Medical Ethics Committee of the University Medical Centre Radboud (Nijmegen), which concluded that informed consent from the patients was unnecessary. For the patients who were recruited from the GGZ Eindhoven and 'De Kempen', the management decided that written informed consent was required for insight into their medical files. This institution falls under the regular Dutch legislation governing institutions for mental health care (WGBO). The letter that their attending physician read together with them stated that they would not have to take part in conversations or investigations, so that there would be no additional burden. They were also informed that their data would be made anonymous, so that they would remain unrecognisable as patients to the outside world. Consent was obtained from all but three patients. Because this was a study of patient files, no separate informed consent was required from the patients.

A psychologist, the second author of this article, scored and analysed the variables. Weekly supervision, including the study of variables that were difficult to score, was provided by a clinically active forensic psychiatrist, the first author of this article.

VI.3.5 Statistical methods

The data were analysed using the SPSS version 14.0 Statistical analysis (ANOVA, chi-square tests or Fisher's exact tests for the categorical variables. In cells for which the expected cell frequency is less than five, a Fisher's exact test was done. In order to guarantee the validity of the scored results, an extensive scoring of 10 patients per group (total $n=40$) was repeated. The inter-rater reliability was calculated from these results. All kappa- or ICC-scores showed a good to very good inter-rater reliability. The individual scores are presented under the hypotheses tested.

VI.4 Results

VI.4.1 Hypothesis 1

Are the victims of psychotic TBS-detainees more likely than the victims of TBS-detainees with a personality disorder to be a relative, friend or acquaintance?

In connection with the limited size of the different groups, the psychotic TBS-detainees with or without a personality disorder were taken together (A + C) and compared with the TBS-detainees with a personality disorder only (Table 1).

There was no significant difference between these groups; the victims of psychotic TBS-detainees were not more often relatives, friends or acquaintances. The victims who were relatives, friends or acquaintances were then subdivided according to the type of relationship: husband or wife, relative, partner, friend or acquaintance, and business relation. Here there was a significant difference, but 40% of the subgroups comprised less than 5 people so that no statistically valid conclusions can be drawn from this difference. There was a tendency toward many more partners as victims of TBS-detainees with a personality disorder (group D, 39% versus groups A + C, 8%) and many more business relations, such as the caregivers, as victims of psychotic TBS-detainees (groups A + C, 23% versus group D, 4%).

Table I Relationship with the victim.

	groups A + C		group D		Total	
	%	n	%	n	%	n
husband/wife	4.7	3	3.2	1	4.2	4
relative	15.6	10	12.9	4	14.7	14
partner	4.7	3	29.0	9	12.6	12
friend/acquaintance	21.9	14	25.8	8	23.2	22
caregiver	14.1	9	3.3	1	10.5	10
unknown	39.1	25	25.8	8	34.7	33

group A : psychotic offenders without a personality disorder

group C : psychotic offenders with a personality disorder

group D : non-psychotic offenders with a personality disorder

The control group of psychotic patients from a general psychiatric hospital did contain 13 patients who had victimised someone (even though they were not forensic patients); the victims included 3 strangers and 10 relatives, friends or acquaintances ($ICC = .92 - .99$).

VI.4.2 Hypothesis 2

Is the GAF-score at the time of hospitalisation or the report to the court lower in psychotic TBS-detainees than in the psychotic inmates of a general psychiatric hospital?

There was a significant difference between the four groups in the GAF-scores: ($F(3)=33.32$; $p=.00$) ($ICC=.87$). The score was clearly higher in the TBS-detainees with a personality disorder ($M_D = 51$). The scores in the three groups of psychotic patients did not differ significantly. There was no difference in the GAF-score between the psychotic inmates of a general psychiatric hospital and the psychotic TBS-detainees ($M_A = 35$, $M_B = 32$, $M_C = 36$).

VI.4.3 Hypothesis 3

Are there fewer psychosocial stress factors up to 2 years before the offence in psychotic TBS-detainees than in TBS-detainees with a personality disorder?

There were differences in both the number of instances and the percentage incidence of psychosocial problems, overall and per group; this pertained especially to problems in the primary support group, the social environment, occupational problems, economic problems, problems with the healthcare services and problems with the interaction with the legal system/crime (Tables 2 and 3).

Table II Number of times and percentage occurrence of the psychosocial problems, per group and in the total population.

	group A		group B		group C		group D		Total	
	n	%*	n	%	n	%	n	%	n	%
Primary support group	3	8.8	4	12.5	11	31.4	20	57.1	38	27.9
Social environment	28	80	18	56.3	17	48.6	16	45.7	79	57.7
Educational problems	1	2.9	4	12.5	0	0	3	8.6	8	5.8
Occupational problems	29	82.9	28	87.5	32	91.4	23	65.7	112	91.8
Housing problems	14	40	14	43.8	14	40	8	22.9	50	36.5
Economic problems	9	25.7	6	18.8	16	45.7	19	54.3	50	36.5
Access to healthcare services	9	25.7	3	9.4	0	0	0	0	12	8.8
Interaction with the legal system/crime	10	28.6	0	0	13	37.1	15	42.9	38	27.7
Other problems	5	14.3	5	15.6	6	17.1	9	25.7	25	18.2

*Percentage of the group that has the psychosocial problem.

group A : psychotic offenders without a personality disorder

group B : non-delinquent psychotic patients without a personality disorder in general psychiatry

group C : psychotic offenders with a personality disorder

group D : non-psychotic offenders with a personality disorder

Table III Significant differences between groups in the occurrence of the psychosocial problems.

	groups A/B	groups A/C	groups A/D	groups C/D
Primary support group	ns	$\chi^2 = 5.449$, df 1, p = .020 *	$\chi^2 = 18.120$, df 1, p < .001 ***	$\chi^2 = 4.690$, df 1, p = .030 *
Social environment	$\chi^2 = 4.382$, df 1, p = .036 *	$\chi^2 = 7.529$, df 1, p = .006 **	$\chi^2 = 8.811$, df 1, p = .003 **	ns
Occupational problems	ns	ns	ns	$\chi^2 = 6.873$, df 1, p = .009 **
Economic problems	ns	ns	$\chi^2 = 5.952$, df 1, p = .015 **	ns
Access to healthcare services	ns	F.E.T. = .001 **	F.E.T. = .001 **	ns
Interaction with the legal system/crime	F.E.T. = .001 **	ns	ns	ns

group A : psychotic offenders without a personality disorder
group B : non-delinquent psychotic patients without a personality disorder in general psychiatry
group C : psychotic offenders with a personality disorder
group D : non-psychotic offenders with a personality disorder

* p < .050
** p < .010
*** p < .001
ns = nonsignificant
F.E.T. = Fisher's Exact Test

In both group A and group C, there were significantly **fewer** problems in the primary support group, compared to group D ($Kappa = .737$). These problems included, for example, the death of a family member, the break-up of a family due to divorce, or alienation. The V-code for break-up with a partner or relation was added here.

There were significantly **more** problems in the social environment in group A than in group D, while group C had no more problems than group D ($Kappa = .838$). Problems related to the social environment include, for example, deficient social support, living alone, problems with adjusting to a different culture, or discrimination.

There were significantly **more** occupational problems in group C than in group D, but groups A and D did not differ significantly ($Kappa = .483$). Occupational problems include, for example, unemployment, the threatened loss of a job, burdensome working hours or dissatisfaction with the work.

There were significantly **fewer** economic problems in group A than in group D, while groups C and D did not differ significantly ($Kappa = .751$). Economic problems include, for example, extreme poverty, insufficient income or too low a public welfare benefit.

There were significantly **more** problems in group A than in group D with the access to healthcare services. Such problems did not occur in group C in this study ($Kappa = 1.0$). These problems include, for example, failure of health services to provide adequate assistance, the unavailability of transportation to health centres, or health insurance that is too low.

There were no significant differences between the forensic groups (A-C-D) in the number of problems with the interaction with the legal system/crime ($Kappa = .695$). Examples of such problems are having been arrested, having been involved in a legal procedure, or having the status of a TBS-detainee.

VI.5 Conclusion and discussion

A striking result of the literature search is that most studies investigate patients that have been discharged from a psychiatric hospital and are followed up after return to society. These patients are comparable to the psychotic patients in group B in our own study. It should also be pointed out that the patients included in studies in the literature, often referred to as MMD (major mental disorder) or SMI (severe mentally ill) patients, represent a mixture of patients with psychoses, personality disorders and even major depression. Moreover, the patients with both a psychosis and a personality disorder are never considered as a separate group. In this study, we tried to fill this gap.

When the first hypothesis was tested, no more known persons (partners, relatives, friends or acquaintances) were found among the victims of psychotic TBS-detainees than among those of TBS-detainees with a personality disorder. When the known victims were subdivided according to the type of relationship, there was a tendency toward many more partners as the victims of TBS-detainees with a personality disorder and many more business relations (caregivers, social workers, etc.) among the victims of psychotic TBS-detainees. In the control group (psychotic inmates of general psychiatric hospitals), there was also a tendency toward more known persons among the victims. This finding is in agreement with the data in the literature (Estroff et al., 1994; Estroff et al., 1998, Johnston & Taylor, 2003). Further subdivision according to the type of relationship was not possible because the groups were too small.

The three psychotic groups all showed a low GAF-score, without any significant differences. The GAF-score in TBS-detainees with a personality disorder is significantly higher, in accordance with expectations. This hypothesis reflects the lesser ability to withstand stress in all psychotic patients compared to TBS-detainees with a personality disorder. The GAF-score was lower in group A than in group B; the GAF-score in group C was also lower than in group B. The latter finding shows that the co-morbid personality disorder in psychotic TBS-detainees could disrupt the psychotic image. In a systematic review of three randomised controlled trials, Tyrer and Simmonds (2003) found that the outcome of a co-morbid personality disorder in severe mental illness was worse than that of single diagnoses.

The third hypothesis, concerning the psychosocial and environmental problems, produced the following findings. The psychotic offenders had not had any fewer problems up to 2 years before the offence. This is contrary to expectations since it was presumed that, because of their limited ability to withstand stress and increased vulnerability, psychotic subjects would require less stress than offenders with a personality disorder to become decompensated or resort to extremely violent behaviour. The psychotic TBS-detainees without a personality disorder did have more social problems and more difficulty in obtaining access to mental healthcare. Among the TBS-detainees with a personality disorder, the problems were related mainly to money and relations. It was also striking that most of the problems had existed for a long time (longer than one year). When all of the groups were compared, however, then no more psychosocial problems were found.

A few methodological limitations must be addressed here. First of all, this was a multicentre, retrospective study, based on case note material obtained for clinical rather than research purposes. Not only were there several hospitals involved in this study, but also two kinds of hospitals, forensic and non-forensic for the control group B. The requirement to write court reports and the conditions under which people are detained in the TBS system are likely to throw more light on proscribed behaviour, and to make it much more likely, first of all, that it is witnessed by staff and, secondly, that it appears in the case notes. So the recording systems and the rigour with which behaviour is chronicled are different in forensic hospitals and in general psychiatry. This extra focus could result in an overestimation of (abnormal) behaviour in the forensic hospitals. Next, due to the limited number of patients per group, we had to consider all the psychotic TBS-detainees as a single group in the first hypothesis. Finally, during the choice of variables at the beginning of the study, we did not further subdivide the 'relatives' into parents, brother or sister, etc. As a result, we were unable to answer the question which family member ran a special risk in our population.

It can be concluded from the above that psychotic TBS-detainees victimise their partners less often than their caregivers. It is therefore important that the staff of a TBS-clinic be well-trained and act pro-actively in anticipating aggression. Moreover, psychotic TBS-detainees have difficulty in accessing healthcare. Not only do they have a difficult relationship with caregivers, these caregivers run a greater risk of

becoming a victim of aggression up to 2 years before the offence. Finally, it is possible that psychotic TBS-detainees already received less care before their TBS-offence in connection with their violent nature. In this way, they are excluded from the care they need. This is in agreement with a Finnish study (Timonen et al., 2000, among others), which showed that violent offenders' admission rates due to a psychiatric diagnosis are high, but that they are frequently given an inappropriate level of healthcare. More particularly, it was found that among the violent offenders, one-third of the time spent as hospital inpatients was in university hospitals or central hospitals, and only 1.9% in a comprehensive community care system.

In conclusion, we can state that prospective research will be necessary to test the above findings in a larger patient population. Special attention should then be given to the subdivision of relatives into parents, kind of sibling, etc. We would also be interested in the GAF-score, the frequency of social contact, and their association with violence. The frequency of social contact and with whom could not be tested here. In any case, psychotic TBS-detainees are often excluded from the care they need, but when they finally get care, their caregivers are at risk of violence.

VI.6 References

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Chapter VII

Temporal relationship between the psychotic disorder and a criminal offense

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VII.1 Introduction

Do psychotic patients detained under the Dutch Entrustment Act (TBS) have a prior psychiatric history before they commit their first violent offense? If so, this means that such patients, who present a risk of serious aggressive behaviour towards others, could be detected in general psychiatry. In this way, general psychiatry would have a task in preventing psychotic patients from becoming forensic patients. We know from the literature that many forensic patients already have a history of psychiatric care before committing the index offense, but that such care was often inadequate (Timonen et al., 2000; Hodgins et al., 2004; Hodgins et al., 2006). Moreover, comorbid disorders such as substance abuse and an antisocial personality disorder and/or psychopathy may be responsible for earlier referral of psychotic patients for psychiatric care (Hodgins et al., 2005). Much more often, however, the literature on this temporal relationship fails to subdivide the psychotic patients who have committed a serious offense into those with and without a comorbid personality disorder. In our opinion, an antisocial personality disorder or psychopathy affects the temporal relationship between psychiatric care and the criminal offence due to the presence of a long history of antisocial behavior (non-violent offenses and substance abuse) and an emotional dysfunction that increases the risk of violence directed at others (Moran & Hodgins, 2004). In this comorbid group, we expect that the offense will precede the psychiatric care. In the case of forensic patients, the temporal relationship between the first psychotic episode and the first admission to a psychiatric institution is also unclear. Psychotic patients in general psychiatry are often not hospitalised until after the first psychotic episode, so that one can speak of a duration of untreated psychosis (DUP). In connection with the lack or avoidance of psychiatric care by forensic patients, it is possible that a DUP occurs more often and lasts longer. In this exploratory study, we will try to find an answer to these questions.

VII.2 Description of the Dutch TBS-population

In the Dutch legal system, detention under the Entrustment Act (TBS) is possible if the following criteria are satisfied:

4. There must have been a qualified offense (in general, TBS is limited to offenses for which detention on remand is permitted);
5. There must have been either a mental illness (such as a psychosis) or a defective development of the mental powers (personality disorder, intellectual handicap) at the time of the offense;
6. Due to this disorder, there must be an unacceptable risk of a new offense for which TBS could be imposed.

Four groups of TBS-detainees can be distinguished on the basis of the offense committed and the psychiatric history (Van Emmerik & Diks, 1999):

A 'psychiatric' group (19% of all TBS-detainees) is responsible for either homicide or, especially, arson and numerous offenses involving members of the family. Before TBS, these patients, who are often female, have no or only one conviction and have been admitted to a psychiatric hospital on a voluntary basis. These patients often suffer from psychotic disorders and their prognosis generally involves commitment to a psychiatric hospital or a regional institution for protected living (RIBW). This group shows the most similarity with 'ordinary' psychiatric patients and must be considered eligible for incorporation into the mental healthcare system. This group constitutes the psychotic study population as described below.

In addition, the following three groups can be distinguished:

1. A 'first offender' group (29% of all TBS-detainees) with a history of serious offenses (homicide, sexual offenses), often committed against members of the family; this group has no or only one conviction prior to TBS, there are less serious problems, there is no history of admission to a psychiatric hospital before TBS, and one can speak of a relatively favourable prognosis for an independent return to society, possibly with the exception of the sexual offenders;
2. A 'criminal' group (27% of all TBS-detainees) responsible for many offenses involving bodily injury, sexual offenses and crimes against property, often involving unknown victims; this group has at least two earlier convictions prior to TBS, psychotic disorders are rare, but there is frequent substance abuse and

relatively many cluster B personality disorders. The group is most typically characterised as having a 'criminal' identity;

3. A 'mixed' group (25% of all TBS-detainees) responsible for many offenses involving bodily injury and crimes against property, but rarely for homicide. The victims are mostly strangers and a relatively large proportion of the offenders (25%) has already been sentenced previously and was involuntarily committed for psychiatric care before TBS. This group has at least two earlier convictions prior to TBS. Both psychotic disorders and cluster B personality disorders are seen frequently, often in combination with addiction.

VII.3 Data from the literature

Before reporting our own findings, we will examine the literature to see what is known about the temporal relationship between the first psychotic episode, the first psychiatric admission and the first violent offence. Comorbid disorders such as substance abuse and personality disorders will also be examined in this light, since these may affect the temporal relationship. Finally, the literature regarding DUP will also be reviewed.

The articles were retrieved from www.PubMed.com using the following search terms: (psychosis OR schizophrenia) AND (crime OR violence OR criminality) AND (onset OR timing OR temporal), resulting in 57 articles. Subsequently, other search terms were used: (sequence OR order OR chronology OR temporal) AND (violence OR crime OR felony) AND (psychosis OR schizophrenia) AND (diagnosis OR admission OR intake), resulting in 38 articles. The total yield was therefore 95 articles. The abstracts were then examined to see whether the articles dealt with the chronological sequence of violence or crime, the first psychotic episode, admission to psychiatric institutions, and the diagnosis of psychosis. Next, the bibliographies in the retrieved articles were examined for other related articles. Only articles published since 1990 were used. This procedure yielded a total of 18 articles (of the 95) that required reading, 11 of which were ultimately found to deal with timing.

First, we will examine the articles on the first psychotic episode, its diagnosis or the first psychiatric admission, and the relationship between this and the time of the first

offense; next, we will examine the articles dealing with the timing of the start of the psychosis and its treatment or first psychiatric admission; and finally we will examine two factors that affect or have a relationship with the timing, namely, substance abuse and age. The comorbidity with a personality disorder and/or psychopathy was not properly investigated in this review.

VII.3.1 The time of the first offense in relation to the first psychotic episode, diagnosis and the first admission

A study by Coid et al. (1993) examined the relationship between severe psychiatric illness (i.e. schizophrenia, no personality disorders) and criminality by means of a twin study. One of the hypotheses was that the onset of schizophrenia precedes the start of the criminal behavior. They found a clear relationship between the age at the first psychiatric contact and the age at first conviction. In this study, the onset of schizophrenia preceded the start of criminal behavior by an average of one year. Another study (Taylor & Hodgins, 2003) revealed that a criminal career can begin either before or after the onset of a psychotic disorder, but that violence almost always starts after the onset of the psychosis.

A study by Humphreys et al. (1994) examined a group of people who were in the first psychotic episode of schizophrenia and had committed an offense during the preceding five years. In half of these patients, the offense was strongly associated with specific psychotic symptoms. For half of the group this was the first offense. In 25% of the schizophrenic patients who had committed an offense, the onset of psychosis had come first, followed by their first offense and then the first admission. Another 25% had first committed an offense, followed by the onset of psychosis and then the first admission. In half of the group, the temporal relationship between these occurrences was unclear.

Munkner et al. (2003b) studied patients' records to determine the temporal relationship between the first recorded violent and non-violent offenses, the first psychiatric admission and the diagnosis of schizophrenia. Most of the criminal offenses had been committed before any contact with psychiatric healthcare. The majority of the violent crimes also took place prior to the first psychiatric admission.

In her study, Hodgins (1992) found that the criminal behavior of patients with a severe psychiatric disorder often already appeared during adolescence, long before diagnosis of the psychiatric disorder.

In summary, we can conclude that some studies report that the offense precedes the psychotic disorder, while other studies first describe the psychosis and then the offense. The literature is therefore inconsistent regarding the chronology.

VII.3.2 The time between the first psychotic episode and its treatment

The time between the first psychotic episode and the treatment of the psychosis is referred to as the 'duration of untreated psychosis' or DUP. There is no consensus regarding how the DUP should be measured (Malla & Norman, 2002). For example, it is unclear whether the DUP measures the time between the onset of psychotic symptoms associated with the current episode or that it represents the total time during which the patient has suffered from an untreated psychosis during his lifetime. The second definition would encompass several episodes that had ended spontaneously. There is also lack of clarity regarding the type and severity of the psychotic symptoms that should be used to define the onset of a psychosis, and regarding the criteria that an adequate antipsychotic therapy must fulfil before the DUP can be considered to have ended.

Perkins et al. (2005) carried out a meta-analysis of the relation between the DUP and the results of treatment. However, the studies of the DUP that were used for this meta-analysis did not all define the beginning and end of the DUP in the same way. Sometimes, the first episode was determined on the basis of information from the patient himself, while in other articles it was defined by the caregivers. The onset of the psychosis was sometimes defined on the basis of the first detectable change, but in other articles by the onset of psychotic symptoms or the onset of positive psychotic symptoms. The start of treatment was also defined in various ways, for example by the first admission, the first use of antipsychotic medication, or only by the first effective therapy. Although 70% of patients with schizophrenia first develop negative symptoms and later positive symptoms, the onset of a psychosis is more often defined by the onset of positive symptoms because these can be determined more reliably than the negative symptoms (Larsen et al., 2001). The effect of a

longer DUP on violence and criminal behavior has not yet been properly investigated (Malla & Norman, 2002). The DUP is preceded by a period in which most patients have non-specific, non-psychotic prodromal symptoms. The DUP lasts 1-2 years, on average, and many studies have shown a significant correlation between the DUP and poor results of treatment (Larsen et al., 2001). A shorter duration of the DUP was associated with a better response to antipsychotic therapy as measured by the severity of the overall psychopathology and the functional result. At the start of treatment, the initial DUP was associated with the severity of the negative symptoms but not with the severity of the positive symptom, general psychopathology or neurocognitive functions.

VII.3.3 Effect of substance abuse

In their study, Munkner et al. (2003b) also found a relationship between substance abuse and the time between the first psychiatric admission and the diagnosis of schizophrenia. Patients with a diagnosis of substance abuse appeared in the psychiatric care system five months earlier than patients without a diagnosis of substance abuse. The cause of this could be that a more disruptive illness had led to attempts at self-medication, or that substance abuse had led to an earlier recognition of the need for psychiatric help. When the diagnosis of substance abuse was made at the moment of first psychiatric contact, it had no effect on the time between such contact and the diagnosis of schizophrenia. However, when substance abuse was not diagnosed until after the first contact, then it took longer for the diagnosis of schizophrenia to be made. This was true for men and women considered together; when only men were considered, it turned out that those with a diagnosis of substance abuse at the moment of first contact had less chance of being diagnosed with schizophrenia during this first contact.

VII.3.4 Relationship with age

In an article by Munkner et al. (2003a), a large-scale study of patients' records was carried out in order to determine the impact of criminality on the age at which a person first comes into contact with psychiatric care and on the age at which schizophrenia is diagnosed.

They concluded that persons who committed their first offense before coming into contact with psychiatric care were 13 months older, on average, at the time of first contact than persons who committed their first offense after this contact. This also applied to the diagnosis of schizophrenia, which was made at an older age in persons who had committed an offense than in persons who had not committed an offense, regardless of whether the offense was violent or non-violent and regardless of whether it was committed before the first contact with a psychiatric institution or between that first contact and the diagnosis of schizophrenia. The commitment of an offense during these intervals was associated with an older age at the time of diagnosis of schizophrenia. Those who were diagnosed at the time of their first psychiatric contact were 11 months older at the moment of diagnosis than those in whom it was more difficult to reach a diagnosis. There was also a difference in the time between the first contact with a psychiatric institution and the diagnosis. The older a person was at the moment of first contact, the more quickly he could be diagnosed. Persons with a police record at the moment of first contact with a psychiatric institution were diagnosed more quickly, while persons who committed an offense between the first contact and the diagnosis had to wait longer for this diagnosis. When the offense was not committed until after the first contact with psychiatric care, criminals remained suspended in the legal system instead of the psychiatric system for a longer period, because of their conviction, so that it took longer to reach a diagnosis.

In a third article by Munkner et al. (2005), the results of the same study were used to determine whether there is a relationship between gender, age and substance abuse, on the one hand, and whether persons do or do not commit an offense after their first contact with a psychiatric institution or after the diagnosis of schizophrenia. The results showed that the older a person is at the time of first admission to the psychiatric care system or the first diagnosis, the lower the risk that they will start on a criminal career, provided that they have not committed any crimes before. Persons who are already diagnosed at a young age are affected more by the illness, so that their condition deteriorates more rapidly from a social point of view and they run a greater risk of committing an offense.

Studies into the time of the first offense in relation to the onset of psychosis, diagnosis and first admission have yielded a variety of results. Patients with both a

psychotic disorder and a personality disorder have never been properly identified, in these studies, as a separate group that should be distinguished from psychotic disorders without a comorbid personality disorder. Various definitions of the 'duration of untreated psychosis' or DUP are employed. The effect of a longer DUP on violence and criminal behavior has not yet been properly investigated. Assuming that psychotic TBS-detainees have an alarming tendency to avoid psychiatric care, the question arises whether the DUP is really longer, or occurs more often, in these patients than in psychotic patient in the mental healthcare system.

Patients with a diagnosis of substance abuse entered the psychiatric care system at an earlier age. Moreover, when the substance abuse was not diagnosed until after the first contact, it took longer before a diagnosis of schizophrenia was reached. In our study, we wish to determine whether the time periods between disorder and offense are affected by the presence of substance abuse. The following relationship with age was seen: patients who committed their first offense after coming into contact with psychiatry were 13 months older, on average, at the time of first contact; this also applied to the diagnosis of schizophrenia. When the offense was not committed until after the first contact with psychiatric care, the patients remained suspended in the legal system instead of the psychiatric system for a longer period, because of their conviction, so that it took longer to reach a diagnosis. Unfortunately, the effect of these factors on the time of diagnosis cannot be investigated, since this last variable was not scored in our study.

VII.4 Presentation of the questionnaire and hypotheses

On the basis of the literature, it can be expected that psychotic TBS-detainees without a personality disorder begin a criminal career at an older age, i.e. after the onset of the psychotic disorder. This is in contrast to psychotic TBS-detainees with a personality disorder (Tengström et al., 2001). Psychopathy and/or substance abuse are comorbid disorders that lead to a shorter time period between the criminal behavior and the psychotic disorder.

It can be expected that the DUP, which can be measured as the time period between the onset of psychosis (the first positive symptoms) and the first psychiatric

admission, will be longer for psychotic TBS-detainees than for psychotic patients in general psychiatry. It can also be expected that more psychotic TBS-detainees will have a DUP.

As a result, we arrive at the following hypotheses:

1. a) Most of the psychotic TBS-detainees with a personality disorder (group C) commit their first violent offense before their first admission. This is in contrast to psychotic TBS-detainees without a personality disorder;
b) In psychotic patients without a personality disorder, the first psychiatric admission precedes the TBS-offense by a longer time than in the case of psychotic TBS-detainees with a personality disorder;
c) In psychotic TBS-detainees with a personality disorder, psychopathy and/or substance abuse affect the time period between the psychotic disorder and criminal behavior;
2. The 'duration of untreated psychosis' (DUP) is longer in psychotic TBS-detainees than in psychotic patients in general psychiatry;
3. Compared to psychotic patients in general psychiatry, more psychotic TBS-detainees are admitted at the onset of the psychosis.

VII.5 Method

VII.5.1 Patients

For this case study, we created four groups of patients. Group A ($n = 35$) consists of psychotic TBS-detainees without a personality disorder. Group B ($n = 32$) consists of psychotic patients from a general psychiatric hospital without a personality disorder who have not committed an offence. These general psychiatric patients are between 20 and 50 years of age and were recruited from a long-stay ward (minimum duration of admission: 2 years). Group C ($n = 35$), finally, consists of psychotic TBS-detainees with a personality disorder. Group D ($n = 35$) consists of TBS-detainees with a personality disorder only. In view of the focus of this study, no analyses were carried out on Group D. This group is of importance, however, in the broader context of the dissertation of the first author of this article.

The total number of patients in this study was 102. The forensic patients ($n = 70$) were recruited from three forensic clinics: the Prof. W.P.J. Pompe Foundation in Nijmegen, The Kijvelanden in Poortugaal, and Mental Healthcare Eindhoven and De Kempen in Eindhoven. The control group consisted of psychotic patients from Mental Healthcare Nijmegen. The term 'psychotic patients' is considered to mean patients with an Axis I-psychotic disorder (according to the DSM-IV), such as schizophrenia, schizoaffective disorder, delusional disorder and psychotic disorder NOS. A psychotic disorder due to substance abuse was not included in this study. The 'patients with a personality disorder' included only patients with a cluster B personality disorder (according to the DSM-IV), such as antisocial and/or narcissistic disorders.

Table 1 presents the principal Axis I and II diagnoses, subdivided into the various groups. The patients were characterised by the frequent occurrence of substance abuse, so frequent that we can speak of comorbidity together with the psychotic and/or personality disorder. Table 2 shows the diagnoses of substance abuse, subdivided according to the various groups and the type of substance.

All the forensic patients displayed violent behavior, meaning a serious violent offense for which, in the Dutch judicial system, detention under the Entrustment Act (TBS) is imposed and the offender has either a psychiatric disorder or such a degree of cognitive disability that there is a high risk of repetition of the offence. Specific offenses are, for example, (attempted) murder, (attempted) manslaughter, severe battery and injuries with possibly permanent damage, and arson (Table 3). Sexual offenses were not included in this study because the causes of sexual offenses are extremely different for psychotic offenders versus those with a personality disorder.

The forensic patients from the three clinics were selected at random. However, they were all males between the ages of 20 and 50 and all had committed a violent offense. The psychotic patients in control group B were selected on the basis of the fact that their last admission was involuntary. Permission for insight into their medical files was requested from the patients from Mental Healthcare Eindhoven and De Kempen. The letter that the attending physician read through with them explained that they would not have to participate in conversations or investigations,

so that there would be no additional burden. It was also stated that their data would be made anonymous, so that they could not be identified as a patient by persons outside of the study. All but three patients gave permission. Because this was a study of patients' files, cooperation on the part of the patient was not necessary.

Table I Principal diagnoses from Axis I and II, subdivided into the various groups.

Axis I diagnosis	group A n=35		group B n=32		group C n=35		Total n=102	
	%	n	%	n	%	n	%	n
Schizophrenia	33	94.3	28	87.5	27	77.1	88	86.3
Schizoaffective disorder	1	2.9	0	0	0	0	1	1
Delusional disorder	0	0	0	0	2	5.7	2	2
Other psychotic disorder	1	2.9	4	12.5	6	17.1	11	10.8

Axis II diagnosis	group C n=35		group D n=35		Total n=70		
	%	n	%	n	%	n	
Antisocial pers. disorder	14	40	14	40	28	40	
Narcissistic pers. disorder	5	14.3	5	14.3	10	14.3	
Borderline pers. disorder	5	14.3	7	20	12	17.1	
Personality disorder NOS	11	31.4	9	25.7	20	28.6	

Table 4 presents some of the sociodemographic characteristics of the study population. It is striking that most of the patients were single and unemployed at the time of the offence or admission. Half of the patients had only completed primary school.

VII.5.2 Study strategy

Existing data were used in order to compare the four groups. The anamnestic, diagnostic and psychological test data were retrieved from reports to the court and intake reports by means of a retrospective search. In the case of control group B, the medical files were examined, particular attention being given to the previous medical history.

Table II Diagnoses of substance abuse, subdivided according to the various groups and type of substance.

	group A		group B		group C		group D		Total		
	n	%	n	%	n	%	n	%	n	%	
Alcohol	Abuse	1	2.9	3	9.4	4	11.4	8	22.9	16	22.9
	Dependence	2	5.7	3	9.4	3	8.6	10	28.6	18	13.1
Cannabis	Abuse	4	11.4	6	18.8	5	14.3	3	8.6	18	13.1
	Dependence	4	11.4	4	12.5	1	2.9	2	5.7	11	8
Hard drugs	Abuse	1	2.9	0	0	1	2.9	7	20	9	6.6
	Dependence	3	8.6	1	3.1	3	8.6	5	14.3	12	8.6
Various agents	Abuse	0	0	0	0	0	0	2	5.7	2	1.5
	Dependence	5	14.3	1	3.1	5	14.3	6	17.1	17	12.4
Cocaine	Abuse	1	2.9	0	0	1	2.9	3	8.6	5	3.6
	Dependence	3	8.6	0	0	3	8.6	4	11.4	10	7.3
Amphetamine	Abuse	0	0	0	0	0	0	3	8.6	3	2.2
	Dependence	0	0	1	3.1	0	0	0	0	1	0.7
Hallucinogen	Abuse	0	0	0	0	0	0	1	2.9	1	0.7
	Dependence	0	0	0	0	0	0	1	2.9	1	0.7

group A : psychotic offenders without a personality disorder
group B : non-delinquent psychotic patients without a personality disorder in general psychiatry
group C : psychotic offenders with a personality disorder
group D : non-psychotic offenders with a personality disorder

Table III Index offenses.

(attempted) manslaughter	27.0%
offence against property	26.7%
threat	19.0%
severe battery	16.8%
violence, robbery	10.2%
arson	9.5%
(attempted) murder	9.4%
(attempted) blackmail	8.8%
other violent acts	8.2%

VII.5.3 Instruments

In order to establish the precursors of delinquent behavior, in addition to a list of sociodemographic, (familial) psychiatric and criminological variables that was drawn up on the basis of a study of the current literature in this field, use was made of the following instrument: the historical items of the HCR-20 (Historical, Clinical Risk assessment guide 20), an instrument for assessing the risk of violent behavior. These historical items are: previous violence, the first violent incident at a young age, unstable relationships, problems in the employment history, problems with substance abuse, mental disorder, psychopathy, problems in childhood, personality disorders, and a previous withdrawal from supervision. The psychopathy, the H-7 item, was scored with the aid of the PCL-SV. The PCL-SV is a Screening Version of the PCL-R (according to Hare), which is frequently used for purposes of research.

VII.5.4 Procedure

The variables were scored by trainee psychologists who were writing their dissertations while participating in this study. For variables that were difficult to score, consultation was always possible with the attending psychiatrists who knew the patients well. There was also weekly consultation with a forensic psychiatrist, during which some lists of variables were assessed and amended if necessary.

The study was assessed by the medical ethics committee (Committee for Research on Humans in Nijmegen), which concluded that no declaration of consent from the patients was necessary. In the case of the patients that were recruited from Mental Healthcare Eindhoven and De Kempen, the management decided that a written declaration of consent was necessary. This institution is subject to the regular legislation governing mental healthcare. Consent was obtained from each patient individually.

In order to measure the inter-rater reliability, 10 randomly selected files per group (total of 40) were scored for a second time. The Kappa-values were calculated for the categorical variables and the Interclass Correlation Coefficients (ICC) were calculated for the continuous variables. The inter-rater reliability was generally good to excellent: age at first admission, ICC = .978; first psychotic episode, ICC = .965; date of the TBS-offense, ICC = .843; first conviction (early/late starters), Kappa = .923; H-5 problems with substance abuse, Kappa = .923; H-7 psychopathy, Chi-square = .000.

VII.5.5 Missing data

The variable 'first psychiatric admission' was sometimes missing in the groups 'psychotic TBS-detainees without a personality disorder' (group A) and 'psychotic TBS-detainees with a personality disorder' (group C). The criminological data are usually well documented in forensic psychiatry, but this is much less true for the data on the prior psychiatric history. In order to be sure that this variable was missing for some patients by chance, the patients for whom this variable was present were compared with those for whom this variable was absent. A comparison was made on four sociodemographic variables: current age, marital status, having children or not, ethnicity. There was no significant difference in patients with the present variable 'first psychiatric admission' and those without.

Table IV Sociodemographic characteristics of the study population.

Institution	group A		group B		group C		group D		Total	
	n	%	n	%	n	%	n	%	n	%
Pompe Clinic	7	20	0	0	16	45.7	34	97.1	57	41.6
APZ Nijmegen	0	0	32	100	0	0	0	0	32	23.4
GGZE	9	25.7	0	0	4	11.4	1	2.9	14	10.2
Kijvelanden	19	54.3	0	0	15	42.9	0	0	34	24.8
Total	35	100	32	100	35	100	35	100	137	100
Civil status at the time of the offence or hospitalisation										
Single	23	65.7	28	87.5	31	88.6	24	68.6	106	77.4
Divorced	7	20	3	9.4	3	8.6	3	8.6	16	11.7
Married	3	8.6	1	3.1	1	2.9	4	11.4	9	6.6
Cohabiting	2	5.7	0	0	0	0	4	11.4	6	4.4
Total	35	100	32	100	35	100	35	100	137	100
Employment status at the time of the offence or hospitalisation										
Employed	2	5.7	0	0	1	2.9	8	22.9	11	8
Studying	0	0	2	6.3	1	2.9	1	2.9	4	2.9
Unemployed	33	94.3	30	93.8	33	94.3	26	74.3	122	89.1
Total	35	100	32	100	35	100	35	100	137	100
Domiciliary status at the time of the offence or hospitalisation										
Own home	14	40	9	28.1	9	25.7	16	45.7	48	35
With parents	5	14.3	7	21.9	4	11.4	6	17.1	22	16.1
Shared household	4	11.4	5	15.6	7	20	7	20	23	16.8
Homeless	7	20	7	21.9	11	31.4	6	17.1	31	22.6
Hospitalised	5	14.3	4	12.5	4	11.4	0	0	13	9.5
Total	35	100	32	100	35	100	35	100	137	100

	group A		group B		group C		group D		Total	
	n	%	n	%	n	%	n	%	n	%
Ethnic origin										
Europe	17	48.6	25	78.1	18	51.4	25	71.4	85	62
Surinam	8	22.9	0	0	8	22.9	1	2.9	17	12.4
Neth. Antilles	2	5.7	2	6.3	0	0	1	2.9	5	3.6
North Africa	5	14.3	2	6.3	2	5.7	3	8.6	12	8.8
Turkey	1	2.9	0	0	2	5.7	1	2.9	4	2.9
Iran/ Iraq	0	0	1	3.1	0	0	0	0	1	0.7
Indonesia	0	0	2	6.3	1	2.9	1	2.9	4	2.9
Other Asian	2	5.7	0	0	3	8.6	3	8.6	8	5.8
Other South American	0	0	0	0	1	2.9	0	0	1	0.7
Total	35	100	32	100	35	100	35	100	137	100
Highest educational level completed										
None	1	2.9	1	3.1	3	8.6	3	8.6	8	5.8
Primary school	21	60	6	18.8	18	51.4	23	65.7	68	49.6
Lower secondary education	6	17.1	8	25	10	28.6	3	8.6	27	19.7
Intermediate second. education	3	8.6	9	28.1	3	8.6	4	11.4	19	13.9
Higher second. Education	3	8.6	6	18.8	1	2.9	2	5.7	12	8.8
College/University	1	2.9	2	6.3	0	0	0	0	3	2.2
Total	35	100	32	100	35	100	35	100	137	100

VII.6 Results

VII.6.1 Hypotheses 1a and 1b

Hypothesis 1a: Do most psychotic TBS-detainees with a personality disorder (group C) commit their first violent offense before their first admission? And is this different for psychotic TBS-detainees without a personality disorder?

Hypothesis 1b: Does the first psychiatric admission precede the TBS-offense by a longer period of time in psychotic TBS-detainees without a personality disorder than in psychotic TBS-detainees with a personality disorder?

An ANOVA was carried out with the 'time in years between the first admission and the first violent offense' as the independent variable and the patient groups (A/C) as the between-subject factor. There was no difference between groups in the time between the first admission and the first violent offense: $F(1.46) = 0.112$, $p = .740$. The average time between the first admission and the first violent offense did not differ significantly between groups A and C: $M_A = -2.83$, $M_B = -3.50$. In general, the first admission preceded the first violent offense.

A chi-square test was also carried out with 'the first violent offense before/after the first admission (before/after the same year)' and 'patient group (A/C)' as variables. This showed that there is no significant relationship between these variables: $\chi^2(2) = 0.651$, $p = .722$. It should be pointed out in this connection, however, that the expected cell frequency is smaller than 5 in more than 20% of the cells. The numbers are low because some of the data on first admission are lacking for groups A and C. The percentage that committed their first violent offense before their first admission is equally high in groups A and C (Table 5). Table 6 shows the differences between groups A and C in the time intervals.

It can be concluded from this that psychotic TBS-detainees with a personality disorder are also admitted before committing their first offense. The time period between the first admission and the TBS-offense is no different in psychotic TBS-detainees with or without a personality disorder (7 to 9 years).

Table V Temporal relationship between the first violent offense and the first admission (groups A and C).

first admission/ first violent offense	group A		group D		Total	
	%	n	%	n	%	n
before	62.5	15	66,7	16	64.6	31
after	33.3	8	25	6	29.2	14
same year	4.2	1	8.3	2	6.3	3

Table VI Differences between groups A and C in the various time intervals (in years).

	group A	group C	statistics
period of time between first conviction for a violent offense and onset of psychosis	3.44	2.87	ns
period of time between first conviction for a violent offense and first admission	-2.83	-3.5	ns
period of time between onset of psychosis and TBS-offense	8.29	8.34	ns
period of time between first admission and TBS-offense	6.85	8.87	ns
period of time between first conviction and TBS-offense	3.88	4.8	ns
period of time between onset of psychosis and first admission	1.33	-0.04	ns

ns Nonsignificant

VII.6.2 Hypothesis 1c

Do psychopathy and/or substance abuse affect the time interval between the psychotic disorder and criminal behavior in psychotic TBS-detainees with a personality disorder?

Table VII Differences between groups A and C in the various time intervals (in years): the influence of psychopathy.

	M none	M slightly	M severe	statistics
period of time between first conviction and onset of psychosis	4.48	-3	1	F(2,27)=2.742, p=.082, $\eta=.17^*$
period of time between first conviction and first admission	-4.11	-1.2	-4	ns
period of time between onset of psychosis and TBS-offense	8.84	7.65	0.67	ns
period of time between first admission and TBS-offense	8.18	12.01	3.12	ns
period of time between first conviction and TBS-offense	4.22	8	-1	ns
period of time between onset of psychosis and first admission	1.29	-3.82	-2.49	F(2,23)=6.108, p=.007 **, $\eta=.37$

*= no post-hoc tests : at least 1 group < 2 patients

**= p < .01

ns Nonsignificant

The different time intervals were subjected to ANOVA-tests with a time interval as the independent variable and H 7: psychopathy (HCR-20) or H 5: substance abuse (HCR-20) as the between-subject factor (Tables 7, 8 and 9).

It can be concluded that severe psychopathy shortens the time interval between the first violent offense and the first psychotic episode from 4.5 to 1 year. Psychotic TBS-detainees with severe psychopathy are first admitted, on average, 2.5 years before their first psychotic episode, in contrast to psychotic TBS-detainees without psychopathy who are admitted for the first time one-and-a-half year after their first psychotic episode.

Table VIII Influence of substance abuse on the various time intervals
(in years) in Group C.

	M none	M slightly	M severe	statistics
period of time between first conviction and onset of psychosis	9.5	2	0.88	$F(2,27)=3.599$, $p=.041^*$, $\eta=.21$
period of time between first conviction and first admission	-9.75	-2.67	-2.07	ns
period of time between onset of psychosis and TBS-offense	10.15	7.31	8.15	ns
period of time between first admission and TBS-offense	11.95	7.34	8.67	ns
period of time between first conviction and TBS-offense	2	4.43	5.94	ns
period of time between onset of psychosis and first admission	0.4	0.25	-0.25	ns

* $p < .05$

ns Nonsignificant

Serious substance abuse shortens the time interval between the first violent offense and the first psychotic episode from 9.5 years to less than one year in psychotic patients with a personality disorder. In psychotic TBS-detainees without a personality disorder, substance abuse has no effect on the time intervals.

VII.6.3 Hypothesis 2

Is the 'duration of untreated psychosis' (DUP) longer in psychotic TBS-detainees than in psychotic patients in general psychiatry?

Table IX Influence of substance abuse on the various time intervals (in years) in group A.

	M none	M slightly	M severe	statistics
period of time between first conviction and onset of psychosis	3.9	1.56	4.27	ns
period of time between first conviction and first admission	0.86	0.75	4.54	ns
period of time between onset of psychosis and TBS-offense	8.77	6.47	9.06	ns
period of time between first admission and TBS-offense	4.23	3.73	9.21	ns
period of time between first conviction and TBS-offense	2.5	4.56	4.4	ns
period of time between onset of psychosis and first admission	2.22	0.24	1.18	ns

ns Nonsignificant

The average duration of the DUP in groups A, B and C is approximately 2 years. Despite the fact that forensic psychotic patients tend to avoid professional healthcare, there is no significant difference between the psychotic TBS-detainees (groups A and C) and psychotic patients in general psychiatry (group B).

VII.6.4 Hypothesis 3

Compared to psychotic patients in general psychiatry, are more psychotic TBS-detainees admitted after the first psychotic episode?

Table 10 shows the number of patients with and without a DUP. There was a DUP in 21 of the 24 psychotic TBS-detainees without a personality disorder (group A), indicating that they were not admitted until after the first psychotic episode. Among the psychotic patients in general psychiatry (group B), there are approximately equal numbers of patients with and without a DUP. Among the psychotic TBS-detainees with a personality disorder (group C), 16 of the 26 had a DUP. There was thus a significant difference between groups A and B and between groups A and C, but not between B and C. It was not possible to score all the patients because data on the first admission are lacking for a number of them.

VII.7 Discussion

It should be pointed out immediately that a number of hypotheses could not be confirmed, possibly due to the relatively small size of the groups and the lack of some data. It should be possible to test these hypotheses at a later time on larger groups of patients. The absolute time intervals must also be interpreted in the light of the limited numbers of patients.

Contrary to expectations, psychotic TBS-detainees with a personality disorder are also admitted for the first time before their first conviction for a violent offense

Table X Presence of a duration of untreated psychosis (DUP)
(admission after the onset of psychosis).

group	no DUP	DUP	total
A	3 (12.5%)	21 (87.5 %)	24 (100 %)
B	13 (41.9 %)	18 (58.1 %)	31 (100 %)
C	10 (38.5 %)	16 (61.5 %)	26 (100 %)

ABC $\chi^2(2)=6.089$, $p=.048$ *

AB $\chi^2(1)=5.682$, $p=.017$ *

AC $\chi^2(1)=4.372$, $p=.037$ *

BC ns

* $p < .05$

ns Nonsignificant

(rejection of hypothesis 1a). This means that in this study group, psychotic TBS-detainees with a comorbid personality disorder also begin their psychiatric careers before committing an offense.

The time between the first admission and the TBS-offense is not significantly different for psychotic TBS-detainees with or without a personality disorder. The average duration in years is 6.85 for group A and 8.87 for group C. The late starters (first conviction after the age of 18) are usually found in group A, so that the TBS-offense can be expected to occur later in life. The first offenders are also found more often in this group. In group A we found mainly late starters ($n = 27$, 22.9 %), while in group C there were just as many early starters ($n = 18$, 51.4%) as late starters ($n = 17$, 48.6%). This means that hypothesis 1b can also be rejected.

With regard to psychopathy, the following was seen. Severe psychopathy shortens the time between the first conviction and the onset of psychosis. In psychotic TBS-detainees with severe psychopathy (measured with the PCL-SV), the first conviction takes place, on average, one year before the first psychotic episode, compared to about 4.5 years in psychotic TBS-detainees without psychopathy. Psychotic TBS-detainees with severe psychopathy are admitted for the first time 2.5 years before their first psychotic episode, on average, in contrast to psychotic TBS-detainees without psychopathy who are first admitted an average of 1.5 year after the first psychotic episode.

With regard to substance abuse, in group C severe substance abuse shortens the time interval between the first conviction for a violent offense and the first psychotic episode by an average of 8.5 years. In group A, substance abuse has no effect on the time intervals between the various variables of the psychotic disorder and criminal behavior.

In general, therefore, psychotic TBS-detainees come into contact with the mental healthcare system before committing their first offense. Patients with severe psychopathy are admitted for the first time even before their first psychotic episode. There is an interval of 7-9 years between the first psychiatric admission and the TBS offense. This is a relatively long period of time. Regular psychiatry could therefore play a greater role in prevention if the determinants of future delinquent behavior by psychotic patients could be made clearer.

There was no difference between psychotic TBS-detainees and psychotic patients in general psychiatry with regard to the duration of untreated psychosis (DUP). The average duration is about two years, which corresponds to data in the literature on that subject. On the basis of the fact that psychotic TBS-detainees display an alarming tendency to avoid psychiatric care, it could be expected that the first admission would take place a longer time after the first psychotic episode. Contrary to expectations, this is not the case (rejection of hypothesis 2).

The psychotic TBS-detainees without a personality disorder have a DUP more often than psychotic patients in general psychiatry (hypothesis 3 is thus confirmed for group A). Psychotic TBS-detainees with a personality disorder do not have a DUP more often than regular psychotic patients (hypothesis 3 is rejected for group C). There is a DUP in significantly more patients in group A than in groups B and C. The consequence of a comorbid personality disorder in psychotic TBS-detainees is that more of them are admitted before the first psychotic episode. This may mean that psychotic TBS-detainees without a personality disorder are more difficult to identify due to the absence of residential care.

VII.8 Conclusions and recommendations

There is considerable similarity between psychotic patients in general psychiatry and psychotic TBS-detainees. In this connection, we would like to emphasise the special circumstances in the Netherlands, where psychotic patients who commit a serious offense are given TBS-status. In other countries, such delinquent psychotic patients are treated in general psychiatry. As a result, the international literature on violent psychotic patients cannot be readily extrapolated to the Dutch TBS-situation. It may well be that these psychotic TBS-detainees are a separate subgroup of violent psychotic patients in general.

In any case, the recognisability of the various groups of psychotic patients in general psychiatry could have a preventive effect if the comorbidity is examined. In the first place, we are thinking of the comorbidity of a psychotic disorder with a personality disorder, but comorbidity with psychopathy and substance abuse can also be relevant. As described above, the latter may affect the time intervals. Other

non-psychiatric variables, such as a poor social context and substance abuse, may make the difference, in psychotic patients, between committing a serious offence and not committing one (Swanson et al., 2002). Our results should be compared with the findings in the literature. We also recommend that the hypotheses be tested again in larger groups of patients with fewer missing variables, and that the variable 'date of diagnosis' also be considered.

VII.9 References

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Chapter VIII

The role of substance abuse in psychotic versus personality disordered offenders detained under the Dutch entrustment act (TBS)

VIII.1 Introduction

The purpose of this exploratory study is to investigate the role of substance abuse in violent offenders with regard to age at first conviction, psychiatric diagnosis, and criminal history. Before presenting the question and the hypotheses, however, we shall see what can be found on this subject in the literature.

Since 1990, research has revealed considerable variation in the prevalence of substance abuse in patients with schizophrenia. The primary risk factors in this connection are male gender and young age. In a sample of schizophrenic patients, Cantor-Graae et al. (2001) found a lifetime prevalence of substance abuse of 48.3%, mainly alcohol, alone or in combination with other agents. Significant associations were also found between substance abuse and male gender, criminal behavior, more frequent hospitalization, and a family history of substance abuse. Swanson et al. (1997) found violent behavior in psychiatric patients to be related to comorbid substance abuse, the absence of recent contact with psychiatric services, and psychotic symptoms such as a feeling of being threatened and cognitive disorganization. Soyka (2000) emphasized the importance of recurrent intoxication, so that the increased risk of aggression cannot be interpreted simply as the result of poor social integration. Finally, Tengström et al. (2001) emphasized the importance of substance abuse in early starters (those with the first conviction before the age of 18), due to both the presence of a diagnosis of substance abuse and the fact that most early starters were intoxicated at the time of the offense. Moreover, early starters differed from late starters in the prevalence of substance abuse by the parents, low grades at school, and a Conduct Disorder at an early age.

What is the effect of substance abuse on the relation between violence and a psychotic disorder? According to Smith & Hucker (1994), substance abuse was more prevalent among psychiatric patients than previously supposed. Patients with schizophrenia, especially, were more susceptible to the negative effects of substance abuse, such as antisocial and violent behavior. Phillips (2000) arrived at a comparable conclusion: the prevalence of violent behavior was higher in patients with both a psychiatric disorder and comorbid substance abuse than in those with a single diagnosis. Such a dual diagnosis was a significant predictor of violent behavior. Male schizophrenic patients in a large Finnish birth cohort were also

found to be at high risk of committing a violent offense (Tiihonen et al., 1997). The prevalence of registered offenses was highest among schizophrenics with comorbid alcohol abuse and patients with an alcohol-induced psychosis. Steinert et al. (1996) compared a group of violent male schizophrenic patients with non-violent schizophrenic patients; substance abuse was seen in 70% of the aggressive male schizophrenic patients versus 13% of the patients that had no history of violent behavior. This is in agreement with the results of a study by Blanchard et al. (2000). According to them, substance abuse was seen in half of the schizophrenic patients, especially in young men. A large retrospective study of hospitalized Swiss patients and a matched control group from the total Swiss population (Modestin & Ammann, 1995) revealed that the number of criminal convictions was significantly higher among users of alcohol and drugs (independent of sociodemographic factors). The chance of a criminal record was twice as high among schizophrenic males with comorbid substance abuse as in schizophrenic males without substance abuse (Modestin & Würmle, 2005). In comparison with the rest of the population, however, the chance of having committed a violent offense was greater in schizophrenic patients without substance abuse. Finally, Panhuis & Dingemans (2000) compared three Dutch cohorts of mainly male psychotic TBS-detainees. This comparison also showed that the use of alcohol and drugs can aggravate violent behavior in patients with psychosis.

Finally, let us examine the effect of a combination of substance abuse and a personality disorder in psychotic offenders. The prevalence of a comorbid personality disorder and substance abuse in male psychotic patients convicted for (attempted) murder was investigated by Putkonen et al. (2004). A lifetime prevalence of substance abuse was found in 74% and alcohol abuse in 72%. Half of the group had a comorbid personality disorder, including 47% with an antisocial personality disorder. It is striking that substance abuse was seen in all offenders with a personality disorder. Only 25% of the patients did not have a comorbid disorder. Steele et al. (2003) compared schizophrenic patients with and without substance dependence. Those with substance dependence more often had a criminal history and were more often intoxicated prior to hospitalization. Moreover, they more often had an antisocial personality disorder. In a study by Baxter et al. (1999), schizophrenic patients were followed for 10 years after their discharge from a medium-security treatment facility. Prior to treatment, the patients had a history of frequent intramural psychiatric care, violent offenses, substance abuse, alcohol

abuse to a lesser degree, and a conduct disorder. Compared to patients with only schizophrenia, those with a comorbid conduct disorder or problematic use of alcohol had twice as high a risk of violent behavior. The chance of a relapse was increased by young age, multiple drug use or a conduct disorder.

In summary, we can conclude that, compared to late starters, early starters more often have a diagnosis of substance abuse, are more often intoxicated at the time of the offense, and more often have parents that abuse alcohol or drugs. The distinction between early and late starters is important because early starters start criminal behavior younger, in a more severe fashion, and go on for a longer time (Tengström et al., 2001; Moffitt et al., 2001). Schizophrenic patients that abuse alcohol or drugs have a higher number of criminal convictions and a greater chance of a criminal record. In schizophrenic offenders, the combination of substance abuse and a personality disorder increases the chance of a relapse.

On the basis of this review of the literature, we are left with the questions reflected in the following three hypotheses. Is substance abuse present more often, and did it begin at an earlier age, in early starters than in late starters? Are offenders with a personality disorder more often intoxicated at the time of the offense than psychotic offenders? Do offenders with a diagnosis of substance abuse-related disorder or intoxication at the time of the offense have a more criminal history than offenders without a comorbid diagnosis? Or, to phrase the question in another way, can one predict that offenders will have a diagnosis of substance abuse-related disorder or intoxication at the time of the offense on the basis of variables in the criminological history? We will attempt to find an answer to these questions for this specific TBS-population in the Netherlands.

VIII.2 Materials and Method

VIII.2.1 Sample

Four groups of patients (N=137) were created, including three with violent offenders (TBS-detainees). In the Dutch legal system, detention under the Entrustment Act (TBS) is possible if the following criteria are satisfied: there must have been a

qualified offense (in general, TBS is limited to offenses for which detention on demand is permitted); there must have been either a mental illness (such as a psychosis) or a defective development of the mental powers (personality disorder, intellectual handicap) at the time of the offense; and due to this disorder, there must be an unacceptable risk of a new offense for which TBS could be imposed. Group A (n=35) consisted of psychotic offenders without a personality disorder and Group B (n=32) of non-delinquent psychotic patients in general psychiatry without a personality disorder. These patients were between the ages of 20 and 50 and were recruited from a long-stay ward (minimum duration of hospitalization 2 years, and the last admission was involuntary). Group C (n=35) consisted of psychotic offenders with a personality disorder and group D (n=35), finally, of non-psychotic offenders with a personality disorder.

The forensic patients were recruited from three forensic clinics: the Prof. W.P.J. Pompe Foundation in Nijmegen, 'De Kijvelanden' in Poortugaal, and the GGZ Eindhoven (Eindhoven Mental Health Service) and 'De Kempen' in Eindhoven. The control group comprised psychotic patients from the GGZ Nijmegen. By 'psychotic patients' is meant: patients with an Axis I psychotic disorder according to the DSM-IV (American Psychiatric Association, 1994), such as schizophrenia, schizoaffective disorder, delusional disorder, and psychotic disorder NOS. A psychotic disorder due to substance abuse was not included in this study. Bipolar disorders were not encountered in this population. The group of 'patients with a personality disorder' included only those with a disorder of the cluster B type (according to the DSM-IV), such as an antisocial and/or narcissistic personality disorder. Of the psychotic patients, 86.3% (n=102) had schizophrenia, 1% had a schizoaffective disorder, 2% a delusional disorder, and 10.8% a psychotic disorder NOS. The following personality disorders were encountered in groups C and D: 40% antisocial, 14.3% narcissistic, 17.1% borderline and 28.6% personality disorder NOS (cluster B characteristics). A typical finding in the study group was the frequent occurrence of comorbid substance abuse. Among the psychotic patients this was mainly cannabis, while in those with a personality disorder it was mainly alcohol and to a lesser extent cocaine or amphetamines. The diagnoses of substance abuse, subdivided into the various groups and the type of substance, are shown in Table 1.

By 'severe violent behavior' we mean, for example, (attempted) murder, (attempted) manslaughter, severe battery and wounds with (permanent) injury, and arson. These accounted for 9.4%, 27.0%, 16.8% and 9.5% of the offenses within the studied population, respectively. Sexual offenses are not included in this study because the etiology of sexual offenses is different for psychotic offenders and offenders with a personality disorder.

The forensic patients from the three clinics were selected at random. However, they were all males between the ages of 20 and 50, and they had all committed a violent offense. The psychotic patients in control group B were selected on the basis of the fact that their last admission was involuntary.

The average age at the time the data were collected was 38.8 years (SD 8.3). The ethnic origin was usually European (62%). Most of the patients were single (77.4%) and unemployed (89.1%) at the time of the index offense. For half of all the patients, the highest level of education completed was primary school.

VIII.2.2 Study strategy

Existing data were used to compare the four groups. The anamnestic, diagnostic and psychological test data were retrieved from reports to the court and intake reports, respectively. In the case of the control group B, the medical files were examined, with special attention to the prior history.

VIII.2.3 Instruments

Clinical assessment of the diagnoses (five axes of the DSM-IV) was standardized by a multidisciplinary team of psychiatrists and psychologists, mostly in the Observation Clinic of the Ministry of Justice (Pieter Baan Center, Utrecht). All offenders had to remain there for several months. In general, one could say that the psychiatrist draws conclusions as to the presence or absence of psychiatric illnesses, with their symptoms and the resulting limitations, while the psychologist draws conclusions as to the abnormalities in character structure and behavior (van Marle, 2000). The diagnoses were reassessed carefully in the hospitals to which the offenders were admitted. For the assessment of personality disorders (Axis-II of the

Table I Diagnoses of substance abuse, subdivided according to the various groups and type of substance.

		group A		group B		group C		group D		Total	
		n	%	n	%	n	%	n	%	n	%
Alcohol	Abuse	1	2.9	3	9.4	4	11.4	8	22.9	16	22.9
	Dependence	2	5.7	3	9.4	3	8.6	10	28.6	18	13.1
Cannabis	Abuse	4	11.4	6	18.8	5	14.3	3	8.6	18	13.1
	Dependence	4	11.4	4	12.5	1	2.9	2	5.7	11	8
Hard drugs	Abuse	1	2.9	0	0	1	2.9	7	20	9	6.6
	Dependence	3	8.6	1	3.1	3	8.6	5	14.3	12	8.6
Various agents	Abuse	0	0	0	0	0	0	2	5.7	2	1.5
	Dependence	5	14.3	1	3.1	5	14.3	6	17.1	17	12.4
Cocaine	Abuse	1	2.9	0	0	1	2.9	3	8.6	5	3.6
	Dependence	3	8.6	0	0	3	8.6	4	11.4	10	7.3
Amphetamine	Abuse	0	0	0	0	0	0	3	8.6	3	2.2
	Dependence	0	0	1	3.1	0	0	0	0	1	0.7
Hallucinogen	Abuse	0	0	0	0	0	0	1	2.9	1	0.7
	Dependence	0	0	0	0	0	0	1	2.9	1	0.7

group A : psychotic offenders without a personality disorder
group B : non-delinquent psychotic patients without a personality disorder in general psychiatry
group C : psychotic offenders with a personality disorder
group D : non-psychotic offenders with a personality disorder

DSM-IV), a MMPI-2 (Minnesota Multiphasic Personality Inventory-2) was available for each psychotic or non-psychotic patient.

In order to identify the precursors of delinquent behavior, a list of sociodemographic, (familial) psychiatric and criminological variables was compiled on the basis of a study of the current literature in this field. The H-items of the HCR-20 (Webster et al., 1997) were carefully assessed in each patient. The HCR-20 is designed to assess the risk of violence in subjects with mental or personality disorders. It consists of 10 Historical, 5 Clinical, and 5 Risk Management factors.

The age at first conviction was dichotomized into before the age of 18 and 18 years old or older. Early starters are patients who had their first conviction before the age of 18, while late starters are those who had their first conviction after their 18th birthday. The literature indicates that this dichotomization is useful, rather than the age at first conviction, as a continuous variable (Moffitt & Caspi, 2001; Tengström et al., 2001). Moreover, in the Dutch situation, real ages at first conviction are generally not available because young people that commit an offense usually end up in the police station and not in court. The available figures are therefore also unreliable. The type of substance abuse was not considered in the analysis because of the small numbers of patients.

VIII.2.4 Procedure

The study was assessed by the Medical Ethics Committee of the University Medical Center Radboud (Nijmegen), which concluded that informed consent from the patients was unnecessary. For the patients who were recruited from the GGZ Eindhoven and 'De Kempen', the management decided that written informed consent was required for insight into their medical files. This institution falls under the regular Dutch legislation governing institutions for mental health care (WGBO). The letter that their attending physician read together with them stated that they would not have to take part in conversations or investigations, so that there would be no additional burden. They were also informed that their data would be made anonymous, so that they would remain unrecognizable as patients to the outside world. Consent was obtained from all but three patients. Because this was a study of patient files, no separate informed consent was required from the patients.

The variables were scored by psychology students. In order to determine the inter-rater reliability, 10 randomly chosen files per group (total of 40) were scored for a second time. Good to excellent Interclass Correlation Coefficients (ICC) (Shrout & Fleiss, 1979) for continuous variables and Kappa-values for categorical variables were found (age at first conviction, 0.933; age at first substance abuse, 1.000; intoxication of the offender, 0.932; diagnosis of substance abuse, 0.864; early/late starters, 1.000; and item H-5 of the HCR-20, 0.923).

VIII.2.5 Statistical methods

The data were analyzed using SPSS version 14.0 Statistical analysis (ANOVA, chi-square tests or Fisher's exact test for categorical variables and a t-test for continuous variables). In cells for which the expected cell frequency was less than 5, a Fisher's exact test was done. In connection with the small numbers of subjects per cell, some groups were combined into a single group. A Bonferroni type adjustment was made for inflated Type 1 error (criminological variables, hypothesis 3). Only p values < .007 (.050 / 7) were significant. Pearson's correlation coefficients (denoted by r) were calculated from the criminological variables. The r -values are presented in the results, together with the p-values. Values of $r = .10$ to $.29$ or $-.10$ to $-.29$ show a small correlation between variables; values of $r = .30$ to $.49$ or $-.30$ to $-.49$ show a medium correlation and values of $r = .50$ to 1.0 or $-.50$ to -1.0 show a large correlation. The minus sign indicates a negative correlation (Cohen, 1988). Logistic regression was used to test models to predict categorical outcomes with two categories, i.e. patients with a substance-related disorder (yes/no) and intoxicated at the time of the TBS-offense (yes/no). Only the criminological variables (univariate predictors) that were significant in the ANOVA were included in the logistic regression analysis.

VIII.3 Results

Is substance abuse present more often, and did it begin at an earlier age, in early starters than in late starters?

We first investigated whether there was a significant difference between psychotic offenders without a personality disorder (group A) and psychotic offenders with a

personality disorder (group C) with regard to the ratio of early to late starters. In group A, 8 patients (22.86%) were early starters and 27 (77.14%) were late starters; in group C, 18 patients (51.43%) were early starters and 17 (48.57%) were late starters, $\chi^2(1)=6.119$, $p=.013$. In personality disordered offenders (group D), 20 patients (70%) were early starters and 15 (30%) were late starters.

Early starters were more often intoxicated at the time of the offense than late starters, $\chi^2(1)=10.24$, $p=.001$. Early starters also had a substance abuse-related diagnosis on axis I more often than late starters, $\chi^2(1)=17.03$, $p<.000$. Moreover, the early starters had begun abusing drugs or alcohol at an earlier age ($M=13.6$ years) than late starters ($M=14.9$ years), $F(1.54)=4.92$, $p=.031$.

The variable 'substance abuse in the father' was clearly documented in 83 of the total group of 105 TBS-detainees. In 30 of these 83, the father was known to abuse drugs or alcohol (36.1%). A family history of paternal substance abuse was present more often in early starters than in late starters ($n=11$, 13.3%), $\chi^2(1)=4.314$, $p=.038$. There were no significant differences in the type of drugs used by the father.

Are offenders with a personality disorder more often intoxicated at the time of the offense than psychotic offenders?

There was a significant difference between the groups in the frequency with which the offender was intoxicated at the time of the offense, $\chi^2(3)=13.30$, $p=.004$. There was also a significant difference between the groups in the frequency of a prior diagnosis of substance abuse at the time of the offense, $\chi^2(3)=10.29$, $p=.016$.

When the group was dichotomized on the basis of the score on the 5th item of the HCR-20 (H-5=problems with substance abuse), a significant difference was seen at a score of 'none' (0) or 'somewhat and severe' (1 or 2).

The TBS-detainees with a personality disorder were significantly more often intoxicated and more often had a prior diagnosis of substance abuse at the time of the offense than the psychotic TBS-detainees without a personality disorder. There was a relationship between intoxication of the offender and a prior diagnosis of substance abuse at the time of the offense, $r=.614$, $p<.001$. There was no significant difference between the groups, however, when the H-5 score was taken as a continuous variable (score 0, 1 or 2: none, somewhat or severe). Finally, all of the

TBS-detainees (groups A, C and D) were taken together and compared with the control group B. The TBS-detainees were intoxicated significantly more often at the time of the offense than the non-TBS patients had been at the time of hospitalization, $\chi^2(1)=7.089$, $p=.008$. A significant difference was found when the group was dichotomized according to the H-5 score and also when the H-5 score was taken as a continuous variable, $\chi^2(1)=7.629$, $p=.006$ and $\chi^2(2)=7.967$, $p=.019$, respectively.

Do offenders with a diagnosis of substance abuse-related disorder or intoxication at the time of the offense have a more criminal history than offenders without a comorbid diagnosis? Or, to phrase the question in another way, can one predict that offenders will have a diagnosis of substance abuse-related disorder or intoxication at the time of the offense on the basis of variables in the criminological history?

There were more psychotic TBS-detainees with a substance abuse-related disorder at the time of the index offense that were **younger than 18 years at the time of their first conviction (early starters)**, compared to patients without a comorbid diagnosis. However, patients with a substance abuse-related disorder had not committed any more **violent and sexual offenses or offenses against property** prior to the index offense. Finally, there was no difference between the two groups in the **number of months spent in prison**, the **number of prior convictions for an offense or stay in crisis- or treatment centre while young**, after the Bonferonni type adjustment. A summary of the results can be found in Table 2.

Next, we calculated the Pearson's correlation coefficients for the significant variables ($p < .050$). A strong negative correlation was found between the 'younger than 18 at time of first conviction' and 'stay in crisis- or treatment center while young', $r = -.56$, $p = .000$. A medium negative correlation was found between 'younger than 18 at time of first conviction' and 'number of offenses against property committed', $r = -.47$, $p = .000$. No correlation was found between 'stay in crisis- or treatment center while young' and 'number of offenses against property committed'.

Finally, we performed a logistic regression analysis that showed that the overall model fit, $\chi^2(1) = 9.730$, $p = .002$, Nagelkerke $R^2 = .173$. The variable 'younger than 18 at time of first conviction' was a predictor for having a substance-related disorder at the time of the index offense, $\chi^2(1) = 2.371$, $p = .002$.

Table II Criminological history in psychotic TBS-detainees (groups A and C, n = 70) with or without a substance related disorder.

	Patients with a substance-related disorder				
	No		Yes		statistics
	n	%	n	%	
Prior convictions for an offense (n=50)	27	38.6	24	34.3	ns
Younger than 18 at time of first conviction (n=26)	8	11.4	19	27.1	$\chi^2 = 9.517^{**}$
Stay in crisis- or treatment center while young (n=14)	4	5.7	10	14.3	$\chi^2 = 4.142^*$
	Mean	SD	Mean	SD	
Number of violent offenses committed (n=69)	2.0	2.7	2.0	2.7	ns
Number of sexual offenses committed (n=69)	0.1	0.3	0.3	1.4	ns
Number of offenses against property committed (n=68)	1.9	2.6	5.6	8.0	$t = -2.481^*, \eta = .17$
Number of months spent in prison (n=66)	6.6	14.8	12.5	22.5	ns

* p < .05

** p < .007

ns = non-significant

The criminological variables described above were also compared in psychotic TBS-detainees that were or were not intoxicated at the time of the index offense. No significant differences were found.

Among the 29 personality disordered TBS-detainees who had prior convictions, significantly more with a substance abuse-related disorder at the time of the index offense had **prior convictions**, compared to those without a comorbid diagnosis. However, no more patients with a substance abuse-related disorder at the time of

Table III Criminological history in personality disordered TBS-detainees (group D, n = 35) with or without a substance-related disorder.

	Patients with a substance-related disorder				
	No		Yes		statistics
	n	%	n	%	
Prior convictions for an offense (n=29)	6	17.1	23	65.7	F.E.T. **
Younger than 18 at time of first conviction (n=20)	4	11.4	16	45.7	$\chi^2 = 4.227^*$
Stay in crisis- or treatment center while young (n=12)	1	2.9	11	31.4	F.E.T. *
	Mean	SD	Mean	SD	
Number of violent offenses committed (n=35)	0.7	1.1	3.5	2.3	t = -4.904 ***, $\eta = .43$
Number of sexual offenses committed (n=35)	0.0	0.0	0.2	0.8	na
Number of offenses against property committed (n=35)	0.7	0.8	4.2	3.5	t = -4.631 ***, $\eta = .46$
Number of months spent in prison (n=35)	1.6	5.2	22.8	28.1	t = -3.509 **, $\eta = .33$

* $p < .05$

** $p < .007$

*** $p < .001$

ns = non-significant

na = non-applicable

the index offense were **younger than 18 years (early starters)** or had **spent time in a crisis or treatment center while young**, compared to those without a comorbid diagnosis, after the Bonferonni type adjustment.

More **violent offenses** and **offenses against property** had been committed by patients with a substance abuse-related disorder than by those without a comorbid diagnosis. Because no **sexual offenses** had been committed by patients without a substance abuse-related disorder, no differences between the two groups could be

Table IV Criminological history in personality disordered TBS-detainees (group D, n = 35), whether or not intoxicated at the time of the index offense.

	Patients intoxicated at the time of the offense				
	No		Yes		statistics
	n	%	n	%	
Prior convictions for an offense (n=29)	9	25.7	20	57.1	F.E.T. **
Younger than 18 at time of first conviction (n=20)	4	11.4	16	45.7	$\chi^2 = 9.956$ **
Stay in crisis- or treatment center while young (n=12)	2	5.7	10	28.6	$\chi^2 = 5.115$ *
	Mean	SD	Mean	SD	
Number of violent offenses committed (n=35)	1.7	2.2	3.2	2.4	ns
Number of sexual offenses committed (n=35)	0.0	0.0	0.2	0.9	na
Number of offenses against property committed (n=35)	2.2	4.4	3.6	2.3	ns
Number of months spent in prison (n=35)	11.0	23.9	19.0	25.9	ns

* p < .05

** p < .007

ns = non-significant

na = non-applicable

calculated. Finally, those with a substance abuse-related disorder had spent significantly more **months in prison** than those without a comorbid diagnosis. A summary of these results can be found in Table 3.

Next, we calculated the Pearson's correlation coefficients for the significant variables ($p < .050$). A strong negative correlation was found between 'prior convictions for an offense' and 'younger than 18 at time of first conviction', $r = -.53$, $p = .001$. A medium positive correlation was found between 'prior convictions for an

offense' and 'number of violent offenses committed', $r = .49, p = .003$. A medium positive correlation was also found between 'prior convictions for an offense' and 'number of offenses against property committed', $r = .42, p = .013$. A strong negative correlation was found between 'younger than 18 at time of first conviction' and 'stay in crisis- or treatment center while young', $r = -.63, p = .000$ and a medium negative correlation between 'younger than 18 at time of first conviction' and 'number of violent offenses committed', $r = -.36, p = .033$. A strong positive correlation was found between 'number of violent offenses committed' and 'number of offenses against property committed', $r = .67, p = .000$, as well as between 'number of violent offenses committed' and 'number of months spent in prison', $r = .54, p = .001$, and between 'number of offenses against property' and 'number of months spent in prison', $r = .65, p = .000$.

Finally, we carried out a logistic regression analysis that showed that the overall model fit, $\chi^2(6) = 26.630, p = .000, Nagelkerke R^2 = .736$. However, none of the six significant predictors (criminological variables) survived in this multivariate model. A possible explanation is that the criminological variables were too highly correlated.

The criminological variables described above were also compared in personality disordered TBS-detainees that were or were not intoxicated at the time of the index offense. Of the offenders, significantly more that were intoxicated had **prior convictions**, compared to patients that were not intoxicated. Significantly more patients that were intoxicated at the time of the index offense were **younger than 18 years (early starters)**, compared to those without a comorbid diagnosis. However, there were no significant differences between intoxicated and non-intoxicated patients with regard to the **number of violent offenses or offenses against property** that had been committed, nor with regard to the **number of months spent in prison or stay in crisis- or treatment center while young**, after the Bonferonni type adjustment. Because no sexual offenses had been committed by patients without a substance abuse-related disorder, no differences between the two groups could be calculated. A summary of these results can be found in Table 4.

Next, we calculated the Pearson's correlation coefficients for the significant variables. A strong negative correlation was found between 'prior convictions for an

offense' and 'younger than 18 at time of first conviction', $r = -.53$, $p = .001$, as well as between 'younger than 18 at time of first conviction' and 'stay in crisis- or treatment center while young', $r = -.63$, $p = .000$. No correlation was found between 'prior convictions for an offense' and 'stay in crisis- or treatment center while young'. Finally, we carried out a logistic regression analysis that showed that the overall model fit, $\chi^2(3) = 15.627$, $p = .001$, Nagelkerke $R^2 = .484$. However, none of the three significant predictors (criminological variables) survived in this multivariate model. Once again, a possible explanation is that the criminological variables were too highly correlated.

VIII.4 Discussion

With reference to the distinction between early and late starters, the early starters in our study were more often intoxicated at the time of the offense and also had a substance abuse-related disorder more often. Moreover, they were younger than the late starters when they began abusing alcohol or drugs and significantly more of their fathers also used drugs. This is in agreement with the findings of Tengström et al. (2001) and hence in agreement with the international literature.

Compared to psychotic TBS-detainees without a personality disorder, personality disordered TBS-detainees more often had a diagnosis of substance abuse at the time of the offense. When 'problems with substance abuse' were made operational by taking the score on item H-5 (problems with substance abuse) of the HCR-20 as a continuous variable, no differences were found between the groups. It is clear in any case that TBS-detainees are more often under the influence of alcohol or drugs at the time of the offense than are psychotic patients from general psychiatry at the time of the index admission. A significant difference was found, however, when item H-5 was used as a dichotomous variable.

It has been repeatedly reported in the literature (Smith & Hucker, 1994; Phillips, 2000; Tiihonen et al., 1997; Modestin & Ammann, 1995; Modestin & Würmle, 2005; Arsenault et al., 2000) that schizophrenics who use drugs have a higher prevalence of violent behavior, a greater chance of a criminal record and a larger number of criminal convictions. These results were reflected to only a very limited extent in our

psychotic TBS-detainees. Patients with a substance abuse-related disorder were significantly younger at the time of their first conviction. This variable was also a predictor for having a substance-related disorder at the time of the index offense.

It is noteworthy that they had not committed more violent, sexual offenses or offenses against property, had not been admitted to a crisis- or treatment center while young, had no more prior convictions for an offense and had not spent more months in prison than psychotic TBS-detainees without a comorbid diagnosis of substance abuse. The prior criminal history is no more serious in psychotic TBS-detainees who were intoxicated at the time of the index offense than in those that were not intoxicated. The impact of a diagnosis of substance abuse is thus smaller in psychotic TBS-detainees. Thus, our findings for psychotic TBS-detainees essentially recapitulate what is known for the general population. Psychotic TBS-detainees do not differ from the general population in terms of the role of early onset of antisocial behavior and substance abuse in likelihood of violent crime. Or put differently, psychotic status does not appear to alter the role of the other primary predictors in the likelihood of committing a violent crime.

On the other hand, the score of personality disordered TBS-detainees with a substance abuse-related disorder on criminological variables is significantly higher than that of those without comorbidity.

Personality disordered patients who were intoxicated at the time of the offense had more previous convictions and were more often early starters. However, being intoxicated at the time of the offense does not seem to be associated with a more criminal history.

Unfortunately, the significant criminological variables did not survive any of the logistic regression models in personality disordered TBS-detainees, probably due to the strong correlations between the variables. Hence, no model could predict whether a personality disordered TBS-detainee had a diagnosis of substance abuse-related disorder, or had been intoxicated at the time of the TBS-offense.

With regard to the differences found between psychotic and personality disordered offenders, we can conclude that substance abuse in personality disordered

offenders fits in with a criminal history. In contrast, the role of substance abuse in psychotic offenders is related directly to the psychotic disorder and less to the criminal environment in which these patients find themselves. Reports in the literature have repeatedly demonstrated that substance abuse can be resorted to by psychotic patients as a kind of self-medication for the frightening symptoms of the psychotic disorder (Dixon et al., 1991; Noordsy et al., 1991; Addington & Duchak, 1997; Baigent et al., 1995).

A few methodological limitations must be addressed here as well. First of all, this was a multicenter, retrospective study, based on case note material obtained for clinical rather than research purposes. Next, some groups had to be combined because of the small number of patients. Finally, the small numbers of patients may limit the conclusions that can be drawn.

In summary, we can state that substance abuse has an aggravating effect on criminogenic behavior, depending on the age at first conviction and the diagnosis. Special attention to substance abuse must especially be given in early starters with a personality disorder. One might wonder whether such early starters first have their first conviction, before the age of 18, and then start with substance abuse, or whether the chronology is the opposite (first the start of substance abuse and then the first conviction). In any case, substance abuse seems to be an important maintaining factor in early starters with a personality disorder.

For the future, we recommend that a prospective study be carried out with larger numbers of patients. It would also be useful to put less highly correlated criminological variables in a predictive logistic regression model. A goal of special importance in such a study would be to determine whether the results with regard to the impact of a substance abuse-related disorder or intoxication at the time of the offense in psychotic offenders can be repeated in our population of psychotic TBS-detainees. If this is the case, then the clinical implication may be that less attention should be paid to substance abuse or dependence as a keystone of treatment in psychotic offenders and that psychotic status does not appear to alter the role of the other primary predictors in the likelihood of committing a violent crime.

VIII.5 References

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Chapter IX

Psychotic symptoms and prior use of psychiatric services in psychotic offenders detained under the Dutch entrustment act (TBS)

IX.1 Introduction

Positive psychotic symptoms can be important as a basis for severe violent behaviour (Taylor, 1985, 1993; Nolan et al., 2003). Because the treatment compliance of forensic patients is low, they can be expected to manifest prominent positive symptoms at the time of the index offence. Whether the relative lack of treatment for the psychosis also results in many negative symptoms is less clear. Should this be the case, then the affective flattening may be more prominent in forensic patients than in psychotic patients in general psychiatry. This emotional dysfunction and the likelihood of violent behaviour can be measured with the Deficient Affective Experience (DAE) scale (Moran & Hodgins, 2004), consisting of four items from the Psychopathy Checklist Revised (PCL-R). Many forensic psychotic patients have had contact with psychiatric services long before committing the index offence. When there are comorbid personality disorders, with or without conduct disorders in childhood, then there is an even greater chance of prior contact with psychiatric services.

In the present study, we wish to compare psychotic TBS-detainees, with or without a comorbid personality disorder, with psychotic patients in general psychiatry and with non-psychotic TBS-detainees with a personality disorder with regard to their psychotic symptoms, score on the DAE, and contact with psychiatric services prior to the index offence. The aim is to determine whether general psychiatry offers possibilities for earlier intervention to prevent future offences.

IX.2 Data from the literature

We will first deal with the question how frequent and how effective the psychiatric care was prior to the index offence. In a recent article by Hodgins & Müller-Isberner (2004), male schizophrenic patients discharged from forensic and general psychiatric institutions were examined retrospectively with regard to their prior criminal history and admission to hospitals. Of the forensic patients, 77.8% had had prior contact with general psychiatry, while of the general psychiatric patients, 24.3% had committed an offence. The patients that committed offences before their first contact with general psychiatry differed from the non-delinquent general psychiatric

patients in the presence of behaviour problems before 18 years of age, alcohol abuse or addiction at the time of first admission, an antisocial personality disorder, and the Deficient Affective Experience score (see below). The Northern Finland 1966 birth cohort study (Timonen et al., 2000) investigated both the quantity and the quality of the care received. This study revealed that one-third of the violent and one-fourth of the non-violent male offenders had been admitted to hospital for a psychiatric disorder at least once before the age of 32. The numbers of admissions for violent and non-violent male offenders were significantly higher than that for men without criminal antecedents. The violent offenders spent one-third of their days in hospital in university or other large hospitals, and only 1.9% in a suitable community care system.

Next, we will examine the effect of a cluster B personality disorder (according to the DSM-IV) on the psychiatric care received. Behaviour problems as the result of a personality disorder usually already develop in adolescence, and sometimes there was already a conduct disorder in childhood. The effect of such severe behaviour problems could be that these patients make earlier and more rapid contact with psychiatric services. Hodgins et al. (2005) studied the consequences of a Conduct Disorder (CD) in a group of male schizophrenic or schizoaffective patients. CD was associated with an earlier onset of schizophrenia, a younger age at first hospitalisation, and the total time spent in hospital. During the 2-year follow-up period, neither the diagnosis of CD nor the number of CD symptoms were associated with the levels of positive and negative symptoms, medication compliance, substance abuse, or re-hospitalisation. Disturbing behavior therefore apparently did not lead to new admissions during the follow-up period. The results all indicated that a CD is a distinct comorbid disorder with a course that parallels that of schizophrenia. In a survey of patient records, Coid et al. (1999) found that more than 70% of psychotic and personality disordered patients had been admitted to a psychiatric hospital before and one-third of both groups had been hospitalised involuntarily following a criminal offence (mainly sex offences and arson in the case of personality disorders and drug-related offences in the case of mental illness). The mutual interaction between a comorbid antisocial personality disorder and schizophrenia was studied in a recent article by Moran & Hodgins (2004). The study population consisted of male schizophrenics, three-quarters of whom had committed at least one offence. There was a strong association between a comorbid antisocial personality disorder and substance abuse, problems with attention and

concentration, and poor school results in childhood and adolescence. In adulthood there was an association between the personality disorder and alcohol abuse or addiction and the 'Deficient Affective Experience' score as determined by four items from the PCL-R: shallow affect, lack of remorse, lack of empathy, and 'doesn't accept responsibility'. This is highly predictive of violent behaviour (Cooke et al., 2004). At the first admission, the male schizophrenics with an antisocial personality disorder had a long history of antisocial behavior (non-violent offences and substance abuse) and an emotional dysfunction that increases the risk of violence directed at others. In the article by Hodgins & Müller-Isberner (2004) referred to above, male schizophrenics that had committed an offence before their first contact with general psychiatry had a significantly higher score on the DAE.

What determines whether or not a violent psychotic patient will be hospitalised? Walsh et al. (2002) found that among psychotic patients, a diagnosis of schizophrenia and male gender increased the chance of admission to a forensic psychiatric hospital. Castle et al. (1994) investigated whether these patients were hospitalised at the time of first contact with psychiatric care. Ethnicity, gender, civil status and employment status were not predictive of hospitalisation. Factors that were associated with hospitalisation included the involvement of the police and violence directed at oneself or others. A diagnosis of schizoaffective disorder, paranoia, auditory hallucinations and bizarre behaviour were seen more often in the patients that were hospitalised. Finally, a British study (Humphreys et al., 1992), investigated patients with a first schizophrenic episode. Less than half of these patients were admitted as a direct result of their dangerous behavior.

Summarizing, it may be said that forensic psychotic patients usually have had contact with general psychiatry before the index offence. However, it seems that they do not receive the care they require. The result of a long history of Conduct Disorder or an antisocial personality disorder is that they are admitted at a younger age, but this has no effect on the number of readmissions. Factors that may be associated with hospitalisation include involvement of the police and violence directed at oneself or others. Most of the aggression displayed by psychotic patients cannot be ascribed directly to the positive symptoms of the psychosis. The Deficient Affective Experience scale reflects the degree of emotional dysfunction, which in turn indicates an increased risk of violence towards others.

The literature did not provide any answers to questions such as: What was the psychiatric treatment status at the time of the index offence? Did the psychotic TBS-detainees take psychotropic drugs prior to the index offence, and if so, what kind of drugs? We will attempt to find an answer to these questions for the specific circumstances in the Netherlands.

We therefore arrive at the following hypotheses:

1. Psychotic TBS-detainees have more positive symptoms and a stronger 'deficient affective experience' than psychotic patients in general psychiatry;
2. Psychotic TBS-detainees made less use of psychiatric services and psychotropic drugs than patients in general psychiatry during the last six months before the index offence or index admission (2A). In contrast, psychotic TBS-detainees with a comorbid personality disorder have earlier and more contact with psychiatric services than psychotic TBS-detainees without a comorbid personality disorder (2B);
3. Psychotic TBS-detainees with a comorbid personality disorder and non-psychotic TBS-detainees with a personality disorder (groups C and D) are more often hospitalised and treated by child psychiatrists, and more pervasive developmental disorders are seen in these groups than in psychotic patients without a comorbid personality disorder (groups A and B);
4. Psychotic TBS-detainees are treated in psychiatric hospitals longer and more often than psychotic patients in general psychiatry. Due to the behavior problems accompanied by aggression, more psychotic TBS-detainees have been hospitalised involuntarily, compared to psychotic patients in general psychiatry.

IX.3 Method

IX.3.1 Sample

For our study of the patient records, four groups of patients were created. Group A (n = 35) consists of psychotic TBS-detainees without a personality disorder. Group B (n = 32) consists of psychotic patients from a general psychiatric hospital without a personality disorder who had not committed an offence. These patients are between 20 and 50 years of age and were recruited from a long-stay ward (minimum duration of admission 2 years). Group C (n = 35) consists of psychotic TBS-

Table I Principal diagnoses from Axis I and II, subdivided into the various groups.

Axis I diagnosis	groups A n=35		group B n=32		group C n=35		Total n=102	
	%	n	%	n	%	n	%	n
Schizophrenia	33	94.3	28	87.5	27	77.1	88	86.3
Schizoaffective disorder	1	2.9	0	0	0	0	1	1
Delusional disorder	0	0	0	0	2	5.7	2	2
Other psychotic disorder	1	2.9	4	12.5	6	17.1	11	10.8

Axis II diagnosis	groups C n=35		group D n=35		Total n=70		
	%	n	%	n	%	n	
Antisocial pers. disorder	14	40	14	40	28	40	
Narcissistic pers. disorder	5	14.3	5	14.3	10	14.3	
Borderline pers. disorder	5	14.3	7	20	12	17.1	
Personality disorder NOS	11	31.4	9	25.7	20	28.6	

detainees with a personality disorder. Group D, finally, consists of TBS-detainees with a personality disorder only (n = 35).

The total number of patients in this study was 147. The forensic patients (n = 105) were recruited from three forensic clinics: the Prof. W.P.J. Pompe Foundation in Nijmegen, the Kijvelanden in Poortugaal, and the GGzE (Mental Health Service) and 'De Kempen' in Eindhoven. Psychotic patients from the GGZ Nijmegen were the controls. By 'psychotic patients' we mean patients with an Axis I psychotic disorder according to the DSM-IV (American Psychiatric Association, 1994), such as schizophrenia, schizoaffective disorder, delusional disorder, and psychotic disorder NOS. Drug-induced psychotic disorders were not included in this study. The patients with personality disorders included only those with a disorder of the cluster B type (according to the DSM-IV), such as an antisocial and/or narcissistic personality disorder. Table 1 shows the principal Axis I and Axis II diagnoses, subdivided according to the various patient groups. A characteristic of these patients is the frequent presence of substance abuse, so frequent that one can speak of comorbidity next to the psychotic and/or personality disorder. Table 2

Table II Diagnoses of substance abuse, subdivided according to the various groups and type of substance.

	group A		group B		group C		group D		Total		
	n	%	n	%	n	%	n	%	n	%	
Alcohol	Abuse	1	2.9	3	9.4	4	11.4	8	22.9	16	22.9
	Dependence	2	5.7	3	9.4	3	8.6	10	28.6	18	13.1
Cannabis	Abuse	4	11.4	6	18.8	5	14.3	3	8.6	18	13.1
	Dependence	4	11.4	4	12.5	1	2.9	2	5.7	11	8
Hard drugs	Abuse	1	2.9	0	0	1	2.9	7	20	9	6.6
	Dependence	3	8.6	1	3.1	3	8.6	5	14.3	12	8.6
Various agents	Abuse	0	0	0	0	0	0	2	5.7	2	1.5
	Dependence	5	14.3	1	3.1	5	14.3	6	17.1	17	12.4
Cocaine	Abuse	1	2.9	0	0	1	2.9	3	8.6	5	3.6
	Dependence	3	8.6	0	0	3	8.6	4	11.4	10	7.3
Amphetamine	Abuse	0	0	0	0	0	0	3	8.6	3	2.2
	Dependence	0	0	1	3.1	0	0	0	0	1	0.7
Hallucinogen	Abuse	0	0	0	0	0	0	1	2.9	1	0.7
	Dependence	0	0	0	0	0	0	1	2.9	1	0.7

group A : psychotic offenders without a personality disorder
group B : non-delinquent psychotic patients without a personality disorder in general psychiatry
group C : psychotic offenders with a personality disorder
group D : non-psychotic offenders with a personality disorder

Table III Index offenses.

(attempted) manslaughter	27.0%
offence against property	26.7%
threat	19.0%
severe battery	16.8%
violence, robbery	10.2%
arson	9.5%
(attempted) murder	9.4%
(attempted) blackmail	8.8%
other violent acts	8.2%

shows the diagnoses of substance abuse, subdivided according to the different patient groups and the type of substance.

In the Dutch judicial system, it is possible to commit an offender to a forensic psychiatric institution ('impose TBS') if the following criteria are fulfilled:

1. There must have been a sufficiently serious offence (TBS is generally limited to offences for which temporary detention is permitted);
2. There must have been either a pathological disorder (such as a psychosis) or defective development of the mental abilities (personality disorder, intellectual handicap) at the time of the offence;
3. There must be an unacceptable risk of repetition of an offence for which TBS can be imposed due to the disorder.

Specifically, by serious violent behaviour we mean, for example, (attempted) murder, (attempted) manslaughter, severe battery and wounds with (permanent) injury, and arson (Table 3). Sexual offences are not included in this study because the aetiology of sexual offences committed by psychotic individuals is very different from that of sexual offences committed by individuals with a personality disorder.

The forensic patients from the three clinics were selected at random. However, they were all males between the ages of 20 and 50, and they had all committed a violent offence. The psychotic patients in control group B were selected on the basis of the

fact that their last admission was involuntary. Because this was a study of patient files, no separate informed consent from the patients was required. Table 4 presents some of the sociodemographic characteristics of the study population. It is striking that most of the patients were single and unemployed at the time of the offence or hospitalisation. Half of all the patients had completed only primary school.

IX.3.2 Study strategy

Existing data were used to compare the four groups. The anamnestic, diagnostic and psychological test data were retrieved retrospectively from reports to the court and intake reports. In the case of the control group B, the medical files were examined, with special attention to the prior history.

IX.3.3 Instruments

For the Axis-I psychiatric diagnoses, there was a lack of structured assessment. Unfortunately, a structured assessment of psychotic disorders is not common in forensic psychiatry in the Netherlands. For the assessment of personality disorders (Axis-II of the DSM-IV), a MMPI was available for each patients (assessed in a non-psychotic episode). In any case, a careful evaluation of the psychiatric diagnoses (even on the five axes of the DSM-IV was made as the time of the index offence and during the stay in hospital, by a psychiatrist and a psychologist.

In order to identify the precursors of delinquent behaviour, the following instruments were used in addition to a list of sociodemographic, (familial) psychiatric and criminological variables that was compiled on the basis of a study of the current literature in this field:

- Psychopathy: the H-7 item of the HCR-20 (Webster et al., 1997) was scored with the aid of the PCL-SV. The PCL-SV is a Screening Version of the PCL-R (according to Hare), consisting of 12 items, which is often used for research purposes;
- The 'Deficient Affective Experience' score (Moran & Hodgins, 2004), which consists of the sum of the scores on four items of the PCL-R (Hare, 1991). Since the PCL-R was not used in this study, we had to use the corresponding items from the PCL-SV. Because the item 'shallow affect' is missing from the PCL-SV, we could use only the scores on the 3 other items (lack of remorse, lack of empathy,

Table IV Sociodemographic characteristics of the study population.

Institution	group A		group B		group C		group D		Total	
	n	%	n	%	n	%	n	%	n	%
Pompe Clinic	7	20	0	0	16	45.7	34	97.1	57	41.6
APZ Nijmegen	0	0	32	100	0	0	0	0	32	23.4
GGZE	9	25.7	0	0	4	11.4	1	2.9	14	10.2
Kijvelanden	19	54.3	0	0	15	42.9	0	0	34	24.8
Total	35	100	32	100	35	100	35	100	137	100
Civil status at the time of the offence or hospitalisation										
Single	23	65.7	28	87.5	31	88.6	24	68.6	106	77.4
Divorced	7	20	3	9.4	3	8.6	3	8.6	16	11.7
Married	3	8.6	1	3.1	1	2.9	4	11.4	9	6.6
Cohabiting	2	5.7	0	0	0	0	4	11.4	6	4.4
Total	35	100	32	100	35	100	35	100	137	100
Employment status at the time of the offence or hospitalisation										
Employed	2	5.7	0	0	1	2.9	8	22.9	11	8
Studying	0	0	2	6.3	1	2.9	1	2.9	4	2.9
Unemployed	33	94.3	30	93.8	33	94.3	26	74.3	122	89.1
Total	35	100	32	100	35	100	35	100	137	100
Domiciliary status at the time of the offence or hospitalisation										
Own home	14	40	9	28.1	9	25.7	16	45.7	48	35
With parents	5	14.3	7	21.9	4	11.4	6	17.1	22	16.1
Shared household	4	11.4	5	15.6	7	20	7	20	23	16.8
Homeless	7	20	7	21.9	11	31.4	6	17.1	31	22.6
Hospitalised	5	14.3	4	12.5	4	11.4	0	0	13	9.5
Total	35	100	32	100	35	100	35	100	137	100

	group A		group B		group C		group D		Total	
	n	%	n	%	n	%	n	%	n	%
Ethnic origin										
Europe	17	48.6	25	78.1	18	51.4	25	71.4	85	62
Surinam	8	22.9	0	0	8	22.9	1	2.9	17	12.4
Neth. Antilles	2	5.7	2	6.3	0	0	1	2.9	5	3.6
North Africa	5	14.3	2	6.3	2	5.7	3	8.6	12	8.8
Turkey	1	2.9	0	0	2	5.7	1	2.9	4	2.9
Iran/ Iraq	0	0	1	3.1	0	0	0	0	1	0.7
Indonesia	0	0	2	6.3	1	2.9	1	2.9	4	2.9
Other Asian	2	5.7	0	0	3	8.6	3	8.6	8	5.8
Other South American	0	0	0	0	1	2.9	0	0	1	0.7
Total	35	100	32	100	35	100	35	100	137	100
Highest educational level completed										
None	1	2.9	1	3.1	3	8.6	3	8.6	8	5.8
Primary school	21	60	6	18.8	18	51.4	23	65.7	68	49.6
Lower secondary education	6	17.1	8	25	10	28.6	3	8.6	27	19.7
Intermediate second. education	3	8.6	9	28.1	3	8.6	4	11.4	19	13.9
Higher second. Education	3	8.6	6	18.8	1	2.9	2	5.7	12	8.8
College/University	1	2.9	2	6.3	0	0	0	0	3	2.2
Total	35	100	32	100	35	100	35	100	137	100

and 'doesn't accept responsibility'); in the analysis we therefore use the term 'deficient affective triad (DAT);

- For the symptoms of schizophrenia we used the three-factors model of schizophrenia according to Liddle (1987) and Malla (1993): psychomotor poverty, disorganisation, and reality distortion. For each patient we determined whether or not a particular symptom was present at the time of the index offence (groups A and C) or index admission (group B);
- A pervasive developmental disorder (PTSD, ADHD or ODD) was scored positively only if it was extensively documented by a child & adolescent psychiatrist.

IX.3.4 Procedure

The study was assessed by the Medical Ethics Committee of the UMC Radboud in Nijmegen, who concluded that informed consent from the patients was unnecessary. For the patients who were recruited from the GGzE Eindhoven and 'De Kempen', the management decided that written informed consent was required for insight into their medical files. This institution falls under the regular Dutch legislation governing institutions for mental health care (WGBO). The letter that the attending physician read together with them stated that they would not have to take part in conversations or investigations, so that there would be no additional burden. They were also informed that their data would be made anonymous, so that they would remain unrecognisable as patients to the outside world. Consent was obtained from all but three patients.

The variables were scored by psychology students. In order to determine the inter-rater reliability, 10 randomly chosen files per group (total of 40) were scored for a second time. The Kappa-values were calculated for the categorical variables and the Interclass Correlation Coefficients (ICC) were calculated for the continuous variables. In general, the inter-rater reliability was good to excellent. The values are presented under the tables in the Results section. For the PCL-SV items described above, the Kappa-values were as follows: lack of remorse, Kappa = .844; lack of empathy, Kappa = .755, 'doesn't accept responsibility', Kappa = .710.

Table V Results of hypothesis 1. Number and percentages of patients with the symptom and comparison of the patient groups.

	groups A + C		group B		Total		statistics
	n	%	n	%	n	%	
Psychomotor poverty							
Paucity of expressive gestures	16	22.9	13	40.6	29	28.4	$\chi^2 = 3.407, p = .065$
Lack of vocal inflections	18	25.7	7	21.9	25	24.5	ns
Unchanging facial expression	15	21.4	7	21.9	22	21.6	ns
Decreased spontaneous movements	15	21.4	9	28.1	24	23.5	ns
Poor eye contact	26	37.1	9	28.1	35	34.3	ns
Affect non-responsivity	29	41.4	13	40.6	42	41.2	ns
Poverty of speech	12	17.1	8	25	20	19.6	ns
Increased latency of response	11	15.7	8	25	19	18.6	ns
Physical anergia	14	20	7	21.9	21	20.6	ns
Lack of recreational interests and activities	38	54.3	15	46.9	53	52	ns
Inability to feel intimacy and closeness	27	38.6	6	18.8	33	32.4	$\chi^2 = 3.942^*$
Social inattentiveness	29	41.4	6	18.8	35	34.3	$\chi^2 = 5.011^*$
In persistence at work or school	28	40	22	68.8	50	49	$\chi^2 = 7.264^{**}$
Few relationships with friends and peers	40	57.1	23	71.9	63	61.8	ns

^a No statistics are computed because this variable is a constant.

* $p < .05$

** $p < .01$

ns = non-significant

Kappa: Psychomotor poverty: .781

IX.4 Results

IX.4.1 Hypothesis 1

Because, when groups A and C are considered separately, the expected cell frequency is often lower than 5 in more than 20% of the cells, groups A and C were merged together into a single group of psychotic TBS-detainees (with or without a comorbid personality disorder). This combined group was then compared with psychotic patients in general psychiatry (group B).

Table 5 presents the results of the chi-square tests with the patient group (AC/B) and the various psychotic symptoms as variables. There was no significant association between the patient group and the symptoms of reality distortion. With regard to psychomotor poverty, there was a significant association between the patient group and 'inability to feel intimacy and closeness', 'social inattentiveness', and 'impersistence at work or school'. Inability to feel intimacy and closeness is significantly associated with the patient group: $\chi^2(1) = 3.942, p = .047$. Inability to feel intimacy and closeness was seen in a total of 33 patients (32.4%). This included 38.6% ($n = 27$) in the group of psychotic TBS-detainees, which is significantly higher than the 18.8% ($n = 6$) seen among psychotic patients in general psychiatry. Social inattentiveness is also significantly associated with the patient group: $\chi^2(1) = 5.011, p = .025$. Social inattentiveness was found in 34.4% ($n = 35$) of all patients. This included 41.4% ($n = 29$) in the group of psychotic TBS-detainees, which is significantly higher than the 18.8% ($n = 6$) seen among psychotic patients in general psychiatry. Finally, there is also a significant association between impersistence at work or school and the patient group: $\chi^2(1) = 7.264, p = .007$. This was encountered in a total of 50 patients (49.0%). Among the psychotic patients in general psychiatry, impersistence was seen in 68.8% ($n = 28$), which is significantly higher than the 40.0% ($n = 28$) in the group of psychotic TBS-detainees. This significant difference cannot be explained by the employment situation at the time of the index offence or index admission (working/studying/unemployed), since there is no association between this variable and the patient group. It should be pointed out in this connection, however, that more than 50% of the cells have an expected cell frequency of less than 5.

A GLM univariate test (ANOVA) was done with 'deficient affective triad' (DAT, quantitative) as the dependent variable and patient group (A/B/C/D) as the between-subject factor. This revealed that the patient group has a highly significant effect on the DAT: $F(3,132) = 11.309$, $p = .000$, $R^2 = .204$. *Post-hoc* tests in which the patient groups were compared two at a time revealed that this significant effect can be explained by a significant difference between the averages of groups A, C and D and that in group B ($p_{AB} = .001$, $p_{BC} < .001$, $p_{BD} < .001$), as well as partly by marginally significant differences between groups A and C ($p_{AC} = .093$) and A and D ($p_{AD} = .093$). The corrected averages for the DAT are the same and the highest in groups C and D ($M = 2.800$). The corrected average is next highest in group A ($M_A = 2.200$) and the lowest in group B ($M_B = 0.935$). In view of the above, only groups C and D do not differ (marginally) from one another.

When groups A and C are combined to form a single group of psychotic TBS-detainees and this is compared with the group of psychotic patients in general psychiatry (group B), it turns out that the patient group (AC/B) has a moderately significant effect on the DAT: $F(1,99) = 22.120$, $p = .000$, $R^2 = .183$. The average score on the DAT is significantly higher in the group of psychotic TBS-detainees ($M_{AC} = 2.50$) than in the group of patients in general psychiatry ($M_B = 0.94$).

IX.4.2 Hypothesis 2^A and 2^B

In order to increase the accuracy of the interpretation of the results, the groups of psychotic TBS-detainees with and without a comorbid personality disorder were combined. Chi-square analyses were then performed with the patient group (AC/B) and the use of psychiatric care and psychotropic drugs during the six months before the index offence or index admission (yes/no) as variables. A summary of the results is given in Tables 6 and 7.

There is no significant association between the patient group and **psychiatric admission** during the six months before the index offence or index admission. There is, however, a significant association between the patient group and **psychiatric contact** during the six months before the index offence or index admission: $\chi^2(1) = 5.777$, $p = .016$.

Table VI Results of hypothesis 2^A. Number and percentages of patients who used psychiatric services and medication and comparison of patientgroups.

	groups A + C		group B		Total		statistics
	n	%	n	%	n	%	
Contact	28	40.0	21	65.6	49	48.0	$\chi^2 = 5.777^*$
Admission	25	35.7	16	50.0	41	40.2	ns
Use of psychotropic drugs	19	27.9	15	48.4	34	34.4	$\chi^2 = 3.948^*$
	n=18		n=15		n=33		
Antipsychotics	17	94.4	13	86.7	30	90.9	ns
Antidepressants	0	0	0	0	0	0	^a
Anxiolytics	2	11.1	1	6.7	3	9.1	ns
Mood stabilizers	0	0	1	6.7	1	3.0	ns
Hypnotics	0	0	0	0	0	0	^a
Other drugs	2	11.1	0	0	2	6.1	ns

^a No statistics are computed because this variable is a constant.

* p < .05

ns = non-significant

Kappa: Psychiatric Contact: .796

Psychiatric Admission: .762

Table VII Treatment status.

	groups A + C		group B		Total	
	n	%	n	%	n	%
No contact	53	75.7	17	53.1	70	68.6
Admitted	10	14.3	4	12.5	14	13.7
Escaped	2	2.9	0	0	2	2.0
Ambulatory	5	7.1	11	34.4	16	15.7
Total	70	100	32	100	102	100

Kappa: Treatment status: 1.0

A total of 49 patients (48.0%) had had contact with psychiatric services. In the group of psychotic TBS-detainees, 40.0% (n = 28) had had contact with psychiatry, while

in the group of psychotic patients in general psychiatry this percentage was significantly higher, namely 65.6% ($n = 21$).

There is also a significant association between the patient group (AC/B) and the **psychiatric treatment status** at the time of the index offence or index admission: $\chi^2 = 12.980$, $p = .005$. It should be pointed out in this connection that more than 20% of the cells have an expected cell frequency of less than 5. The percentage of patients in all three groups taken together that had had no contact with psychiatry was 68.6% ($n = 70$); a total of 13.7% ($n = 14$) had been hospitalised, 2.0% ($n = 2$) had escaped, and 15.7% ($n = 16$) were receiving ambulatory care. In the group of TBS-detainees, the percentage that had had no contact with psychiatry was 75.7% ($n = 53$), which is significantly higher than the percentage in the group of patients in general psychiatry: 53.1% ($n = 17$). Of the TBS-detainees, 14.3% ($n = 10$) were hospitalised at the time of the index offence, compared to 12.5% ($n = 4$) of the patients in general psychiatry that were admitted at the time of the index admission. While 2.9% ($n = 2$) of the TBS-detainees had escaped, this was not true of a single patient in the other group. Of the TBS-detainees, 7.1% ($n = 5$) was receiving ambulatory care, but this percentage was significantly higher among the patients in general psychiatry: 34.4% ($n = 11$).

A chi-square test with **intake of psychotropic drugs** up to six months before the index offence or index admission (yes/no) and the patient group (AC/B) as variables revealed a significant association between them: $\chi^2(1) = 3.948$, $p = .047$. A total of 15 patients (34.3%) had used psychotropic drugs. The percentage that had used psychotropic drugs was 27.9% ($n = 19$) in the group of psychotic TBS-detainees, which is significantly lower than the comparable percentage of patients in general psychiatry (48.4%, $n = 15$). In order to specify the use of psychotropic drugs in more detail, chi-square tests were carried out with the patient groups and various types of psychotropic drugs as variables. In these analyses, only those patients were included that had used psychotropic drugs during the six months before the index offence or index admission. There was no significant association between the patient group and any type of psychotropic agent. No statistics were calculated for the use of antidepressants and hypnotic agents because no one had used these agents in either of the patient groups.

Chi-square tests were carried out with the patient group (A/C) and the items pertaining to prior contact with psychiatric services as variables. A summary of the results is given in Table 8.

Table VIII Results of hypothesis 2^B. Number and percentages of patients who had contact with psychiatric services in childhood and comparisons of patient groups.

	group A		group C		Total		statistics
	n	%	n	%	n	%	
Contact before age of 18	10	29.4	18	51.4	28	40.6	$\chi^2 = 3.467, p = .063$
Foster Family	2	5.9	0	0	2	2.9	ns
Institution	8	23.5	15	42.9	23	33.3	$\chi^2 = 2.899, p = .089$
Child psychiatric hospital	0	0	1	2.9	1	1.4	ns
Psychiatric hospital	24	68.6	25	7.4	49	70	ns

ns = non-significant

Kappa: Contact with social services before age of 18: .900

Foster family: .844

Institution: .787

Child psychiatric hospital: total agreement

Psychiatric hospital: .889

For example, a chi-square test was done with **contact with a psychiatric institution before the age of 18** (yes/no) and the patient group (A/C) as variables. This revealed a marginally significant association between these variables: $\chi^2(1) = 3.467, p = .063$. A total of 40.6% ($n = 28$) of the patients had had contact with a psychiatric institution before the age of 18. The percentage that had already had contact with psychiatry before the age of 18 was marginally significantly higher in the group of psychotic TBS-detainees with a comorbid personality disorder (group A; 54.4%, $n = 18$) than in the group without a comorbid personality disorder (group C; 29.4%, $n = 10$).

A GLM univariate test was then done with patient group (A/C) as the between-subject factor and the **age at first admission** as dependent variable (quantitative). This test showed that there is no significant difference between the two groups: $F(1,48) = 2.427, p = .126$. The corrected cell averages ($M_A = 24.833, M_C = 22.038$)

did not differ significantly. There is also no significant association between the patient group and the **psychiatric diagnosis in childhood or adolescence** (conduct disorder or pervasive developmental disorder or PTSD or ADHD or ODD; yes/no).

A GLM univariate test was performed with the patient group as the between-subject factor (A/C) and **age at the start of substance abuse** as dependent variable (quantitative). This showed that the patient group has a moderately significant effect on the age at the start of substance abuse: $F(1,34) = 5.986$, $p = .020$, $R^2 = .150$. The corrected average for the age at which substance abuse started is significantly higher in the group of psychotic TBS-detainees without a personality disorder ($M_A = 15.400$) than in the group of psychotic TBS-detainees with a comorbid personality disorder ($M_C = 13.333$). A chi-square test was then done with problems with substance abuse (yes/no) and the patient group (A/C) as variables. This showed that there is no significant association between these variables.

Table IX Results of hypothesis 4. Number and percentages of patients who are placed in institutions and child psychiatry and who had pervasive developmental disorders. And comparisons of patient groups.

	groups A + B		groups C + D		Total		statistics
	n	%	n	%	n	%	
Pervasive developmental disorder	2	3	1	1.4	3	3	ns ^a
Foster family	5	7.6	4	5.7	9	6.6	ns ^a
Institution	17	25.8	38	54.3	55	40.4	$\chi^2 = 11.478$ **
Psychiatric hospital	54	80.6	35	50	89	65	$\chi^2 = 14.081$ *
Child psychiatric hospital	3	4.5	5	7.1	8	5.8	ns ^a

* $p < .01$

** $p < .001$

^a More than 20.0% have expected count less than 5.

ns = non-significant.

Kappa: Pervasive developmental disorder: total agreement

Foster Family: .844

Institution: .787

Psychiatric hospital: .889

Child psychiatric hospital: total agreement.

IX.4.3 Hypothesis 3

When the groups were compared one at a time, we found that for several variables, the expected cell frequency was lower than 5 in 50% of the cells, meaning that the interpretation of the results would be less accurate. For this reason, patient groups A and B were combined into a single group of psychotic patients (with and without TBS-status). Patient groups C and D were then combined into a single group of patients with a personality disorder (with and without a comorbid psychosis). The results of these analyses are presented in Table 9.

There is no significant association between a **pervasive developmental disorder** in childhood or adolescence (yes/no) and the patient group (AB/CD). There is a significant association between the patient group (AB/CD) and having been placed in an institution during childhood or adolescence (yes/no): $\chi^2(1) = 11.478, p = .001$. Of the patients in all groups taken together, 40.4% ($n = 55$) had been placed in an institution during childhood or adolescence. In the group of psychotic patients this percentage was 25.8% ($n = 17$), while in the group of patients with a personality disorder the percentage was significantly higher: 54.3% ($n = 38$).

There is also a significant association between treatment in a psychiatric hospital and the patient group (AB/CD): $\chi^2(1) = 14.081, p < .001$. A total of 89 patients (65.0%) had been admitted to a psychiatric hospital. In the group of psychotic patients, 80.6% ($n = 54$) had been treated in a psychiatric hospital, while this percentage was significantly lower (50.0%, $n = 38$) among the patients with a personality disorder. **Being placed in a foster home** and **treatment in residential child psychiatry** did not show a significant association with the patient group (AB/CD).

IX.4.4 Hypothesis 4

In connection with the **total duration of psychiatric treatment**, a Kruskal Wallis test was done with the total duration of psychiatric treatment (0 months/0-6 months/6.5-24 months/24.5-60 months/>60 months) as the dependent variable and the patient group (A/B/C/D) as the independent variable. A significant difference was found between these groups:

$\chi^2(3) = 38.275, p < .001$. As a follow-up, the groups were compared two at a time by means of the Mann-Whitney U test with the same dependent variable and two patient groups as the independent variable. The total duration of treatment was significantly longer in group B than in groups A and C. The psychotic TBS-detainees had therefore been treated in psychiatric hospitals for a shorter time than the psychotic patients in general psychiatry. Subsequently, a single-factor variant analysis (ANOVA) was carried out in order to compare the **total number of treatment episodes** between the psychotic TBS-detainees and the psychotic patients in general psychiatry. The total number of treatment episodes was the dependent variable and the patient group (AC/B) was the between-subject variable. A significant difference was found between these groups: $F(1,98) = 15.455, p < .001, R^2 = .136$. The corrected averages were 3 for group AC and 8 for group B. The psychotic TBS-detainees had therefore not only been treated in a psychiatric hospital for a shorter time, but also less often than the psychotic patients in general psychiatry. The first part of hypothesis 4 can therefore be rejected. A chi-square test was then carried out with involuntary admission (yes/no) as the dependent variable and the patient group (AC/B) as the independent variable. A significant difference was found between these groups: $\chi^2(1) = 7.093, p = .008$. A total of 68 of the 102 patients (66.7%) had been admitted involuntarily at some time or another. Significantly more patients in general psychiatry had been admitted involuntarily ($n = 32$; 93.8%) than psychotic TBS-detainees ($n = 27$; 38.6%). The second part of hypothesis 4 can therefore also be rejected.

IX.5 Discussion

IX.5.1 Symptoms of schizophrenia and the DAE

With regard to hypothesis 1, psychotic TBS-detainees were not found to have more positive symptoms of the psychosis than psychotic patients in general psychiatry. This is in agreement with the study by Nolan et al. (2003), which pointed out the lesser importance of positive symptoms in the aggressive attacks by psychotic individuals. Although beyond the limits of this hypothesis, we can also report that there was also no significant difference regarding the symptoms of cognitive disorganisation. There are, however, a few symptoms of psychomotor poverty that

were seen significantly more often in psychotic TBS-detainees, i.e. the inability to feel intimacy and closeness, social inattentiveness, and impersistence at work or school. Forensic psychotic patients therefore seem to have more affective flattening and psychopathic traits. These negative symptoms have an immediate disrupting impact on the social environment. A parallel outcome was found in a Finnish adoption study (Tienari et al., 2004). Here again, there was interaction between psychopathology and the social environment.

An interesting way to measure emotional dysfunction is the 'deficient affective triad' (DAT). Psychotic TBS-detainees and patients with a personality disorder obtain a significantly higher score here than psychotic patients in general psychiatry. The corrected averages for the comorbid psychotic TBS-detainees and the non-psychotic TBS-detainees with a personality disorder are even equal. The impact of a comorbid personality disorder together with a psychosis is thus very important for emotional dysfunction. When the two groups of psychotic TBS-detainees were combined, there was a significant difference between their score on the DAT and the score of psychotic patients in general psychiatry.

IX.5.2 History of psychiatric care

With reference to hypothesis 2^A, the number of psychotic patients in general psychiatry that had been hospitalised during the six months prior to the index admission was not significantly lower than the number of hospitalised psychotic TBS-detainees (six months before the index offence). From the results of the Finnish birth cohort (Timonen et al., 2000), it could be expected that the forensic group would have been admitted more often but that was not the case here. There was, however, more prior contact with psychiatric services, whereby the psychotic patients in general psychiatry received more ambulatory care. The latter group had also taken more psychotropic drugs, but not more antipsychotic agents. The comparison of the psychotic TBS-detainees with and without a personality disorder (hypothesis 2^B) did not show that the comorbid group had received more psychiatric care. The age at first admission was also the same. This is in contrast to the findings of Hodgins et al. (2005). It is thus more difficult to get forensic patients to accept psychiatric care.

TBS-detainees with a personality disorder, whether psychotic or non-psychotic, were almost never diagnosed as having a pervasive developmental disorder. However, the method of positive scoring for this diagnosis must be emphasised (see under Methods – Instruments). On the one hand, this could lead to an underestimate of the actual number of pervasive developmental disorders. On the other hand, in agreement with the findings of Timonen et al. (2000), it is possible that these patients, from childhood on, never succeed in finding the suitable level of psychiatric care. This is compatible with the finding that the patients with personality disorders did not have a history of more admissions to residential child psychiatry. There was, however, a significantly higher number of patients with a (comorbid) personality disorder that resided in an institution. There may be a relationship between the psychopathiform/antisocial characteristics of a personality disorder and the lack of a social safety net. Compared to the patients with a (comorbid) personality disorder, more psychotic patients had been treated in a psychiatric hospital (hypothesis 3).

Finally, the test of hypothesis 4 has revealed the following. If we look at the total duration of psychiatric treatment, we see that the TBS-detainees have had significantly less treatment than psychotic patients in general psychiatry. The number of treatment episodes is also significantly lower in the forensic group (an average of 3 vs. 8). This marginal use of psychiatric services prior to the index offence is in agreement with data in the literature (Timonen et al., 2000; Hodgins & Müller-Isberner, 2004; Hodgins et al., 2006). The forensic group also had significantly fewer involuntary admissions to psychiatric hospitals than psychotic patients in general psychiatry. Under Dutch law, a patient can only be hospitalised involuntarily if there is a serious danger to either third parties or himself. It is therefore remarkable that there were fewer involuntary admissions in the forensic patients that had already committed a violent crime before the index offence. However, this is in agreement with the findings of Humphreys et al. (1992), where the admission was an immediate result of dangerous behaviour in less than half of the patients.

IX.5.3 Methodological limitations

Due to the limited number of patients per group, we were forced to combine two groups for the analyses. The consequence of this is that it was not always possible

to assess the effect of comorbidity of a psychosis together with a personality disorder. Moreover, there is a deficiency of structured diagnostic instruments in forensic psychiatry. Scores on the PANSS (Kay et al., 1987) were not available. Therefore, we had to resort to the symptoms that are described in the three-factors concept of schizophrenia. The inter-rater reliability, however, was found to be good to excellent.

IX.5.4 Conclusions and recommendations

Psychotic TBS-detainees clearly receive too little psychiatric care. Even though they are just as ill as the non-forensic patients (with regard to the positive symptoms of the psychosis), they do not receive the care they need. Our own study revealed that the delay between the first psychiatric admission and the index offence is quite long, averaging 7-9 years (Goethals et al., 2007). General psychiatry therefore has more than enough time to follow these patients, who are at risk of committing a serious violent offence.

In the evaluation of these high-risk patients, the DAE concept is promising. The significantly higher score on the DAE reflects the affect-deprived psychopathiform component in forensic patients. In a comparative study by Hodgins et al. (2006), forensic and non-forensic patients were compared in the context of the increased number of forensic beds. This is a familiar situation in the Netherlands as well, just as in most other countries (Priebe et al., 2005). One of the possible explanations for this increase is that patients who move from general psychiatry into forensic psychiatry did not receive adequate care when they were treated in general psychiatry. The study by Hodgins et al. also showed that the patients who will become forensic patients in the future have more severe and more complex disorders than the other patients in general psychiatry. In addition to treating the psychosis, it is of crucial importance to treat the problems pertaining to the antisocial or psychopathiform dimension.

Interventions designed to reduce aggressive behaviour and to improve empathy, a feeling of responsibility for one's own deeds, and pro-social skills are therefore necessary in relation to the dimension just referred to. It is possible that general psychiatry pays too little attention to these problems. In any case, these interventions

have been developed and used with success for patients with personality disorders (McGuire, 1995). In connection with the considerable overlap between therapeutic interventions, those who implement the treatment programmes for psychotic TBS-detainees and TBS-detainees with a personality disorder should work closely together and communicate regarding their possibilities and limitations. Forensic psychiatry can be of significant assistance to general psychiatry in learning how to perform risk assessment and how to deal with the antisocial characteristics in certain psychotic patients.

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Chapter X

General conclusions, discussion and recommendations

X.1 General conclusions

The purpose of the study reported in this thesis was to determine whether there is a relationship between psychotic TBS-detainees and psychotic patients in general psychiatry. The reason for this is that it may well be a matter of chance whether a psychotic patient ends up in a general psychiatric hospital or a forensic psychiatric centre. In addition, we investigated the differences between psychotic TBS-detainees with and without a comorbid personality disorder. This is important, because there is little available literature on the topic of psychotic offenders with an underlying diagnosis, such as a personality disorder.

All of the current information on forensic psychotic patients comes from abroad. An important question that therefore arises is: what is the significance of all of this information for the situation in the Netherlands? In this study, therefore, the foreign findings were verified for the Dutch situation. Are the results presented in this thesis compatible with what has been found abroad? In assessing this, we must also take the fact into consideration that psychotic TBS-detainees are a specific selection of all the psychotic patients (and offenders) in the Netherlands. After all, many are detained in the special treatment departments of prisons.

Psychotic TBS-detainees are quite comparable to psychotic patients in general psychiatry. However, due to environmental circumstances, comorbid disorders such as a personality disorder, and insufficient access to care, psychotic TBS-detainees have committed serious violent offences. There are no arguments that indicate that the danger (serious violent behaviour such as a TBS-offence) has its origin in the psychotic disorder.

In the following sections, in which the various groups will be compared, we will discuss the above conclusions in more detail.

X.1.1 Psychotic TBS-detainees versus non-delinquent psychotic patients from general psychiatry.

The study of the behaviour problems in childhood and adolescence revealed that psychotic TBS-detainees without a personality disorder resemble psychotic

patients from general psychiatry with regard to the behaviour problems in childhood and adolescence. These behaviour problems were measured on the basis of the existing files by means of the Child Behavior Checklist (CBCL) (Achenbach, 1991). In contrast, psychotic TBS-detainees with a personality disorder displayed more delinquent behaviour (and to a more limited degree aggressive behaviour) during childhood and adolescence than patients from general psychiatry. The psychotic TBS-detainees with a personality disorder had clearly been more delinquent since the age of seven to eighteen years. According to the CBCL, the problem scale 'aggressive behavior' comprises, for example, striking other people or frequent fighting, while the problem scale 'delinquent behavior' comprises, for example, absence from school or the use of drugs. The fact that the impact of delinquent behaviour is greater than that of aggressive behaviour is related to the aetiology of this behaviour. Aggressive behaviour is determined mainly biologically, in contrast to delinquent behaviour that is mainly a product of the environment. In our study, delinquent behaviour during childhood and adolescence had a greater impact on delinquent behaviour as an adult than aggressive behaviour during childhood and adolescence. This confirms the earlier findings of Hofstra et al. (2000).

No differences were found between the two groups with regard to internalising behaviour (the problem scales anxious/depressed, withdrawn, and somatic complaints). In my opinion, internalising symptoms are underreported in psychotic patients from general psychiatry and in psychotic TBS-detainees without a personality disorder. These two groups generally do not cause a social nuisance, so that they remain unnoticed by the police, judiciary and caregivers for a longer time. Moreover, psychotic TBS-detainees without a personality disorder are more often 'first offenders', the TBS-offence being the first offence to be committed.

The victims of psychotic TBS-detainees mainly had a businesslike and close relationship with the TBS-detainees, such as caregivers, for example. This is an important conclusion, because this group of psychotic patients, who later become an offender, received no professional care in an earlier stage. When care giving then finally begins, the caregivers are the most likely victims of the psychotic patients. This is an extremely relevant dilemma, clinically, which I shall discuss in more detail in the recommendations. In the group of psychotic patients from general psychiatry, there were 13 patients who had victimised someone even

though they had never been convicted for an offence. In these 13 patients, the victims were mainly people they knew (relatives). The role of a family member as the victim is also a familiar finding in the literature (Estroff, 1994;1998). The type of relationship between the victim and the TBS-detainee was not investigated in the empirical chapter on victims. Further research is necessary here.

The GAF-score (Global Assessment of Functioning), which is a measure of the degree of psychiatric handicap, was not significantly different between psychotic TBS-detainees and psychotic patients from general psychiatry. The fact that both groups have been hospitalised may well be decisive for the not significantly different scores on the GAF. Actually, I had expected the psychotic TBS-detainees to have a lower GAF-score in connection with the long periods spent without psychiatric care, especially the lack of antipsychotic medication.

With reference to the psychosocial problems preceding the index-offence or the index-admission, significantly more psychotic TBS-detainees had problems with their social surroundings, such as deficient social support, living alone, difficulty adjusting to a different culture, or discrimination. These problems are related to a poor social context or a defective social safety net for these psychotic TBS-patients.

There was no difference between psychotic TBS-detainees and psychotic patients in general psychiatry with regard to the duration of untreated psychosis (DUP). The average duration was about two years, which corresponds to data in the literature on that subject (Perkins et al., 2005). On the basis of the fact that psychotic TBS-detainees display an alarming tendency to avoid psychiatric care, it could be expected that the first admission would take place a longer time after the first psychotic episode. Contrary to expectations, this proved not to be the case. The psychotic TBS-detainees without a personality disorder had a DUP more often than psychotic patients in general psychiatry.

With regard to the symptoms of the psychosis, psychotic TBS-detainees had neither more nor fewer positive symptoms than psychotic patients in general psychiatry. There were also no differences with regard to the symptoms of cognitive disorganisation. There were, however, a number of symptoms of psychomotor poverty that were seen significantly more often in psychotic TBS-detainees, such as the impos-

sibility of feeling intimacy and nearness, social inattentiveness, and failure to make progress at work or in school. This indicates a serious component of shallow affect in psychotic offenders, who probably have a negative impact on their social environment. In addition to shallow affect, psychotic patients from general psychiatry differed from psychotic TBS-detainees in the area of psychopathiform personality traits. In this thesis, this has been made operational via the 'Deficient Affective Triad' (DAT). The DAT is the total score on three items of the PCL-R (lack of remorse, lack of empathy, and 'doesn't accept responsibility'). The 'Deficient Affective Experience' (DAE) comprises, in addition to these three items, a fourth item of the PCL-R, namely 'shallow affect'. I shall come back to the usability of this concept in general psychiatry in the recommendations.

The number of psychotic patients in general psychiatry that had been hospitalised prior to the index-admission was not significantly lower than the number of hospitalised psychotic TBS-detainees that had been hospitalised previously prior to the index-offence. The psychotic TBS-detainees hence did not benefit from more admissions prior to the index-offence. Moreover, they had also had no ambulatory contact with psychiatry. In contrast, the patients from general psychiatry had had more ambulatory contact and had taken more psychotropic drugs (but no antipsychotic drugs). In contrast to the psychotic patients from general psychiatry, the group of psychotic TBS-detainees thus clearly had no lines connecting them with psychiatric care. The results in this area went even further: psychotic TBS-detainees had fewer treatment episodes, a shorter total duration of treatment, and fewer involuntary admissions compared to patients in general psychiatry. Still, we know that the interval between the first psychiatric admission and the index-offence is quite long, seven to nine years on average. We can imagine that general psychiatry therefore has sufficient time to follow these patients, who run the risk of committing a serious violent offence. In a group of psychotic TBS-detainees that had displayed a particularly severe form of aggression at the time of the index-offence, there were apparently no prior aggressive episodes or in any case they were not noticed or not adequately suppressed. This last phenomenon will also be discussed in more detail in the recommendations.

In summary, we can conclude that there are only limited differences between psychotic TBS-detainees and psychotic patients from general psychiatry.

X.1.2 Psychotic TBS-detainees without a personality disorder versus psychotic TBS-detainees with a personality disorder.

The comorbidity of a psychotic disorder with a personality disorder deserves special attention. Are there detectable differences between psychotic TBS-detainees with or without a personality disorder when we look at their prior history?

No differences were found between psychotic TBS-detainees with or without a personality disorder with regard to the behaviour problems during childhood and adolescence as measured with the CBCL. With the aid of a hierarchic cluster analysis, it became clear that externalising behaviour problems during childhood and adolescence are associated with the later development of a personality disorder, whether or not a psychotic disorder is also present. This means that psychotic TBS-detainees with a personality disorder resemble personality disordered TBS-detainees without a psychotic disorder with regard to early behaviour problems. As already indicated above, the psychotic TBS-detainees without a personality disorder resemble psychotic patients in general psychiatry.

The GAF-score, which is a measure of the severity of the psychiatric handicap, did not differ between the two groups. Although we know that comorbidity of a psychotic disorder with a personality disorder makes treatment more difficult and diminishes its results (see, among others, Tyrer & Simmonds, 2003), the combination of a psychotic disorder with a personality disorder does not seem to aggravate the psychiatric handicap, compared to psychotic TBS-detainees without such comorbidity. There were significant differences between the comorbid and non-comorbid psychotic TBS-detainees, however, with regard to the psychosocial and environmental problems up to two years before the index-offence. More comorbid psychotic TBS-detainees had problems in the primary support group. Examples of problems in the primary support group are the death of a member of the family and the break-up of a family due to divorce or estrangement. On the other hand, compared to psychotic TBS-detainees without a personality disorder, fewer comorbid psychotic TBS-detainees had problems with the social environment and access to healthcare. A possible explanation for this finding is that the comorbid group is more mature and better able to find care at the moment that they feel it to be necessary. It is also possible that this group attracts more attention as a result of antisocial behaviour such as impulsiveness, aggression and/or substance abuse.

With regard to the temporal relationship between a psychotic disorder and criminal behaviour, it could be demonstrated that psychotic TBS-detainees with a personality disorder are first admitted to general psychiatric institutions before committing their first violent offence. This did not differ from the findings for psychotic TBS-detainees without a personality disorder. The time lapse between the two variables was also no different in the two groups (seven to nine years). Other intervals relating to a psychotic disorder and criminal behaviour (for example, the period of time between first conviction for a violent offence and the onset of psychosis, or the period of time between the onset of psychosis and first admission) were also no different in the two groups. Finally, compared to psychotic TBS-detainees without a personality disorder, fewer psychotic TBS-detainees with a personality disorder had a DUP (duration of untreated psychosis). This means that fewer psychotic TBS-detainees in the comorbid group had only been hospitalised after the first psychotic episode, compared to those without comorbidity. These findings are in agreement with the data presented above on the problems with access to healthcare.

Significant differences were found between psychotic TBS-detainees with or without a personality disorder with regard to the relative numbers of early and late starters. Early starters are patients who had their first conviction before the age of 18, while late starters are those who had their first conviction after their 18th birthday. The non-comorbid group consisted mainly of late starters, while in the comorbid group the numbers of early and late starters were approximately equal. Early starters were more often intoxicated at the time of the offence and more often had a substance-related disorder, compared to late starters. The early starters had also begun with substance abuse at a younger age than the late starters. Finally, the early starters more often had a family history of substance abuse by the father. TBS-detainees with a first conviction before their 18th birthday (early starters) lead a more pronounced antisocial life than those who begin their criminal career much later.

No significant differences between psychotic TBS-detainees with or without a personality disorder could be detected in the value of the Deficient Affective Triad (DAT). The absolute value of the DAT was highest in the comorbid group, just as high as in the personality disordered TBS-detainees without a psychosis. It seems that the DAT is a good reflection of an antisocial personality disorder. Psychotic TBS-detainees with a personality disorder were rarely diagnosed with a pervasive

developmental disorder. This result was compatible with the fact that this group did not have a history of more psychiatric admissions during childhood and adolescence. On the other hand, this group had been institutionalised more often than the TBS-detainees without a personality disorder. There may be a relationship between the antisocial/psychopathiform traits of the personality disorder and the lack of a social safety net, so that they end up being institutionalised. It must be concluded that this group has had insufficient contact with professional psychiatric care during childhood and adolescence.

In conclusion, it is important to make a clear distinction between the comorbidity of a psychotic disorder with a personality disorder and a psychotic disorder without a personality disorder. In the existing literature on violent behaviour in patients with psychosis (see, among others, Munkner et al., 2003; Nijman et al., 2003; van Panhuis, 1997), however, it is often unclear whether the authors had studied psychotic patients with or without a personality disorder.

X.1.3 Psychotic TBS-detainees versus personality disordered TBS-detainees

Examination of the behaviour problems during childhood and adolescence, as measured with the CBCL, revealed the following. The personality disordered TBS-detainees had significantly more pronounced problems on the problem scale 'attention problems' than the psychotic TBS-detainees without a personality disorder. This significant difference was already clear from pre-school age up to and including the age of 12 years. Children that will later develop a serious cluster B personality disorder as defined by the DSM-IV, with severe aggression, can already be identified during primary school. With regard to the higher score on the problem scale 'attention problems', the personality disordered TBS-detainees resembled the psychotic TBS-detainees with a personality disorder, but not the psychotic TBS-detainees without a personality disorder. With reference to the subdivision into early and late starters, the personality disordered TBS-detainees were mainly early starters; they differed the most from the psychotic TBS-detainees without a personality disorder, most of whom were late starters. The early starters scored significantly higher than the late starters on the problem scales 'delinquent behavior' and 'aggressive behavior'.

In contrast to psychotic TBS-detainees, the victims of personality disordered TBS-detainees were mainly their partners; among psychotic TBS-detainees the victim was most commonly a caregiver. The psychotic TBS-detainees did not have any fewer psychosocial and environmental problems than the personality disordered TBS-detainees. The problems of the personality disordered TBS-detainees were related mainly to finances and relationships. Most of these problems had already been present for more than a year. A break-up with the partner was an important acute stress factor for this group.

With regard to substance abuse, we found that the personality disordered TBS-detainees had been intoxicated at the time of the offence more often than the psychotic TBS-detainees. A diagnosis of substance abuse was made less often in the psychotic TBS-detainees than in the personality disordered TBS-detainees. Substance abuse in personality disordered TBS-detainees is associated with a prior criminal history. Particular attention should be given to substance abuse among early starters with a personality disorder as an adult, because such substance abuse is seen to be an important factor in the continuation of criminal behaviour among these early starters. It is therefore amazing that the identification of substance abuse and appropriate intervention to combat it are still treated in step-motherly fashion in the TBS-clinics. On the other hand, the role of substance abuse among the psychotic TBS-detainees was directly related to the psychotic disorder, more so than to the criminal environment in which these offenders find themselves. An example of this is the use of drugs as self-medication for the frightening symptoms of the psychosis.

With regard to the prior psychiatric history, more personality disordered TBS-detainees had been institutionalised but fewer had been treated in a psychiatric hospital, compared to psychotic TBS-detainees. The total duration of psychiatric treatment was also shorter in personality disordered TBS-detainees. Although the personality disordered TBS-detainees had a relative low GAF-score at the time of the offence, the psychiatric care received prior to the index offence was apparently severely limited.

The differences between personality disordered and psychotic TBS-detainees are evident. A striking finding is that there were almost no differences between

psychotic patients that had or had not committed an offence. There are no indications that schizophrenia or any other psychotic disorder per se leads to violence. Before their detention, the psychotic TBS-detainees without a personality disorder are real 'worrisome care avoiders'. This is made clear by the fact that more TBS-detainees in this non-comorbid group had a DUP and thus had not been treated. Nevertheless, as revealed by the symptoms of the psychosis (just as many symptoms of reality distortion and even more symptoms of psychomotor poverty), they were just as ill as the psychotic patients from general psychiatry. It seems that the absence of the necessary care for this group strengthens their rejection of society, thus aggravating their illness and making them more explosive. This group of patients, and with them society, would seem to be a victim of the socialisation of psychiatric care, which relies more and more on voluntariness, autonomy, and personal initiative in seeking care.

X.2 Discussion of the methodology

First of all, I would like to emphasise the specific nature of the target group of psychotic and personality disordered TBS-detainees. With regard to the latter group, we have a unique system in the Netherlands that sees to it that offenders with a personality disorder can be treated in secure forensic psychiatric centres with a broad arsenal of therapeutic possibilities. This means that we have considerable manpower as well as opportunity to do research on this group, which in other countries is often confined to prison in a much more sober regime. The other group, however, the psychotic TBS-detainees, is only a small fraction of all psychotic offenders in the Netherlands, most of whom remain in separate treatment departments in prisons (van Marle & Nijman, 2007). That group has not been considered in this study.

Also with reference to the literature in the area of a psychotic disorder and serious violent behaviour, it must be emphasised that this literature most often deals with offenders under treatment in general psychiatry and thus in an entirely different context than a forensic psychiatric centre such as a TBS-clinic. Moreover, much of the literature pertains to studies of violence in patients who have returned to society after being discharged from general psychiatry. For this reason, it is difficult to draw comparisons with the international literature on this topic.

The present investigation was a multicentre, retrospective study based on clinical files that were intended mainly for clinical purposes and much less for research purposes. The information was collected in a total of four different institutions, so that the quality of the data was variable and there were often striking differences in the structure of the files. The difference in file structure between the forensic hospitals and the general psychiatric hospital was particularly striking. There were also few or no standard diagnostic instruments. We did, however, succeed in drawing up our own list of variables, based on the literature on the relationship between a psychotic disorder and serious violent behaviour (see in the Appendices).

The relatively small size of the groups may limit the conclusions that can be drawn. Even so, three forensic clinics were required to recruit a sufficient number of patients. The psychotic TBS-patients without a personality disorder are especially scarce in TBS-clinics. Ultimately, achieving a total study population of 137 patients was no sinecure due to a number of inclusion and exclusion criteria, for example the inclusion of psychotic TBS-detainees without a personality disorder, who are rare, and the exclusion of sexual index-offences. In a number of analyses, moreover, several groups had to be combined because of the small numbers of patients. One example of this is groups A and C, the psychotic TBS-detainees with or without a personality disorder. This is unfortunate, since the impact of a comorbid personality disorder together with a psychotic disorder was an important aspect of this study.

Finally, the biological parameters of serious violent behaviour in psychotic patients were not investigated. I shall come back to this point in the recommendations.

X.3 Recommendations

- 1) Starting with the developmental history of future offenders who will commit serious violence, we have seen that delinquent behaviour (to a lesser degree aggressive behaviour) and attention problems are especially important. Problem children that display these problems from a young age onward run a risk of developing a serious psychiatric illness such as schizophrenia, alone or in combination with a personality disorder or a personality disorder of the cluster B

type. The usability of the CBCL in a non-delinquent population has been demonstrated earlier, but our study has shown that the CBCL can be used, even retrospectively, to connect early behaviour problems with a personality disorder in adulthood in psychotic offenders. We recommend that this problematic behaviour in severely disturbed children and adolescents be measured with the aid of the CBCL in primary school and by childhood and adolescent psychiatry. In this way, the detection of relevant increased scores on the scales of the CBCL can lead to extra long-term guidance on the part of parents, teachers and psychiatric personnel. I am of course aware of the fact that this must be made permissible under the law. Legislation based on the danger criterion is then of course insufficient. I shall come back to this point below;

2) Schizophrenic or other psychotic patients that attack strangers on the street without provocation are clearly more the exception than the rule. The victims of psychotic TBS-detainees are usually persons they know, and in our study especially caregivers. It is therefore important that caregivers in forensic and general psychiatry (during the follow-up of psychotic patients) be well trained and take proactive action to anticipate aggression. But the relatives of psychotic patients are at risk as well. In clinical practice, it is always a dilemma to see to it that psychotic patients or offenders are given a good network or re-establish or improve the contacts with members of the family. Psychotic patients will of course benefit from a good supportive network, but at the same time, their network runs the risk of becoming their victim. The most important, in my opinion, is that relatives, friends and caregivers must be well aware of this potential risk. Since various parts of this study have shown that psychotic TBS-detainees had or have a poor social safety net, it is of course our duty, as caregivers and as the society, to make an effort in this direction;

3) I found the 'Deficient Affective Experience' (DAE) to be an especially interesting concept since it has been shown to predict violence. I would like to urge general psychiatry to become more familiar with the PCL-R so that they will be able to score the four relevant items (shallow affect, lack of remorse, lack of empathy, and 'doesn't accept responsibility) for the DAE properly. For this purpose, forensic psychiatry and general psychiatry should set up databases with the values of the DAE. Patients with a high DAE should then be kept under close

supervision in the future. In this connection, I refer in particular to the scoring of the DAE in the comorbid group of psychotic patients with a personality disorder, because this group has a higher score on the DAE;

- 4) It has repeatedly been shown that psychotic TBS-detainees have received less previous treatment than psychotic patients in general psychiatry and that they also more often have a 'Duration of Untreated Psychosis' (DUP). In this group of TBS-detainees, we can justly speak of worrisome care avoiders. It is possible that general psychiatry refuses to accept such more difficult patients, but in my opinion it is also important that the law be changed to give the psychiatrist more power to commit, or to retain in hospital, patients that are not an immediate danger to themselves or their surroundings. The current BOPZ-legislation (law regulating special admissions to psychiatric hospitals) is based exclusively on the danger criterion. This means that the situation has to have deteriorated rather far before patients can be committed to hospital involuntarily, not to mention the involuntary treatment of psychotic patients with psychotropic drugs or other interventions. A treatment act that has been proposed will presumably remedy this situation. Finally, I am convinced that in this context, there is a category of psychotic patients that really cannot survive in our society. The drastic reduction in the number of beds in recent years is not good for these patients. The long-stay wards for psychotic patients are often also needed for psychotic TBS-detainees in phase of resocialisation. Although the acute danger of recurrent violence has passed, many such patients require long-term residential supervision. At present, we sometimes see the psychotic TBS-detainees again in the long-stay wards of forensic psychiatric centres. They require chronic care, but often do not require the security of a TBS-clinic;
- 5) Following from the distinction between psychotic TBS-detainees with or without a personality disorder, the two groups should also be handled differently in a forensic psychiatric centre. The non-comorbid group does not require the additional attention for the antisocial traits within the personality of the psychotic patient. As a result, one can imagine that the referral to general psychiatry can take place much more rapidly here than in the comorbid group;

- 6) I would like to devote a separate discussion at this point to the diagnosis of a personality disorder. It is well known that all forensic patients with a personality disorder have an average of three personality disorders according to the DSM-IV-TR (see, among others, Coid et al., 1999; van Marle, 2007). The a-theoretical classification of personality disorders according to the DSM-IV-TR has not only advantages (such as the universal terminology and the independence from psychiatric 'schools') but also certain disadvantages (Ball, 2001; Widiger & Frances, 2002; Widiger, 1992). We know that personality traits consist of interactions between different dimensions and are associated with biological factors (Paris, 2005). Dimensional instruments such as the Schedule for Nonadaptive and Adaptive Personality (SNAP) (Clark, 1993) or the Dimensional Assessment of Personality Pathology – Basic Questionnaire (DAPP-BQ) (Livesley et al., 1991) can be used in a pathological population but have never been used in forensic psychiatry. One of the advantages of a dimensional approach to personality disorders could be that behavioural dimensions such as impulsiveness, anxiety, etc. can be measured and evaluated over time, coupled to the danger of an offence during the treatment of the antisocial and/or narcissistic traits and personality disorders. In this way, the progress of the treatment can be assessed more readily. An additional advantage of the dimensional approach could be that these dimensions can be named explicitly in the methodical working of a nurse or a sociotherapist. As a result, nurses, sociotherapists and other disciplines can work with the pathological dimensions in a goal-oriented manner, describing and adjusting their interventions. I also see a clear added value of such an approach in the psychotic population, in order to maintain a high level of attention for these specific forensic behavioural dimensions, such as impulsiveness and aggression. Forensic psychiatry could well take the first steps toward the elaboration of a model such as that described above;
- 7) Looking back at the psychosocial and environmental problems in this group, it is especially finances and broken relationships that are important. A broken relationship may also be an acute stress factor. We saw earlier that most of the psychosocial and environmental problems already existed long before the index-offence. During the multidisciplinary treatment of personality disordered TBS-detainees, it will be very important that a prominent role is given to disciplines such as social work (in connection with the finances) and social psychiatric nursing (in connection with supervision of the relationships of the TBS-detainee);

8) This study has shown that substance abuse is highly prevalent in the group of TBS-detainees, both the psychotic detainees and those with personality disorders. The role of substance abuse in early starters with a personality disorder (the first conviction before the age of 18) is particularly important. We established that these early starters have a more serious prior criminological history when there is a comorbid diagnosis of substance abuse. The treatment of substance abuse or dependence must therefore be given a more important place in the treatment. I plead for a separate offence analysis regarding alcohol and drugs and appropriate interventions to bring the problem of addiction or substance abuse adequately under control. Until now, such a comorbid diagnosis of a substance-related disorder has had insufficient consequences in the forensic psychiatric centres. It is amazing, therefore, that the diagnosis of substance abuse and its management via suitable interventions are still treated in step-motherly fashion in the TBS-clinics. For patients in whom substance abuse or dependence have a prominent place in the offence analysis, treatment in an addiction department might be a solution;

9) In order to fill in the gap in the biological parameters, I would recommend that a few biological parameters should certainly be included in future research. These parameters were not investigated in this study, which I as a physician regret. However, this exploratory study already had to take a very large number of other non-biological variables into consideration. The results of imaging studies of the brain and biochemical tests are probably not of immediate use in clinical practice, but they may provide new insights into the aetiopathogenesis of serious violent behaviour in psychotic TBS-detainees. This will require close collaboration with the universities, in connection with, among other things, the availability of the technology for functional imaging of the brain in university centres. The neurobiology of personality disorders is a frequent subject at congresses. In many cases, patients with a borderline personality disorder have been studied, and an attempt is made to create a forensic context by extrapolating these findings in borderline patients to patients with an antisocial personality disorder. The crucial question, in this connection, is whether the same basic mechanisms really underlie the various personality disorders. This is an additional argument for paying sufficient attention, in the future, to the neurobiology of antisocial behaviour in both psychotic offenders and those with an antisocial personality disorder;

- 10) Ideally, a prospective study could be set up, but it seems to me that research into the forensic aspects in psychotic patients from general psychiatry would certainly also be useful in the prevention of serious violent offences. In this connection, we might think of risk assessment during the evaluation of involuntary admissions, the prediction of aggressive behaviour in the departments, or training professionals in administering the PCL-R. In the present study, no consideration has been given to psychotic offenders that are held in separate treatment departments of the prisons. Further research is desirable into, for example, the results of treatment and the quality of life in psychotic offenders held in forensic psychiatric centres in comparison with those that must be treated in the more sober regime of a prison. Finally, measuring instruments must be used in the diagnosis of forensic psychiatric patients. For this study, for example, no structured PANSS (Kay et al., 1987) was available.

X.4 References

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Summaries

Samenvatting

Hoofdstuk I

Algemene inleiding

In de literatuur over psychische stoornissen en geweld vinden we in hoofdzaak drie types van studies tegen: studies van ongeselecteerde geboortecohorten in de samenleving, studies van de prevalentie van Major Mental Disorders bij veroordeelde daders in de gevangenis, en follow-up studies van psychiatrische patiënten die naar de maatschappij terugkeerden. Dit onderscheid tussen de drie types is belangrijk, omdat bij de laatste twee types de samenhang tussen psychische stoornissen en delinquentie sterker zal zijn dan bij de studies uitgevoerd in de samenleving.

De doelstellingen van dit proefschrift zijn: de relatie vaststellen tussen een psychotische stoornis en ernstig gewelddadig gedrag dat heeft geleid tot de TBS-maatregel; de verschillen en gelijkenissen verkennen tussen psychotische patiënten uit de algemene psychiatrie en psychotische daders, met speciale aandacht voor hun voorgeschiedenis; en tenslotte de invloed van comorbiditeit en omgevingsrisico's onderzoeken bij psychotische daders.

In het Nederlandse rechtssysteem is de TBS-maatregel mogelijk wanneer voldaan is aan de volgende criteria: er moet een delict zijn waarop een gevangenisstraf van tenminste vier jaar staat; er moet een mentale ziekte zijn zoals een psychose of een gebrekkige ontwikkeling van de mentale mogelijkheden (persoonlijkheidsstoornis of mentale retardatie) op het moment van het delict; tengevolge van die stoornis is er een onaanvaardbaar risico op een nieuw delict waarvoor eventueel TBS zou kunnen worden opgelegd.

Hoofdstuk II

Patienten en methode: de pilot study

De doelstelling van de pilot study was om de haalbaarheid van het onderzoek te toetsen. De volgende concrete vragen waren hierbij belangrijk: Hoe is het gesteld

met de kwaliteit van de data? Kan de vraagstelling beantwoord worden uit de beschikbare gegevens? Is de voorgestelde methodologie bruikbaar?

Drie groepen patiënten werden gevormd: groep A (n=5) bestond uit psychotische TBS-gestelden zonder een persoonlijkheidsstoornis, groep B (n=5) bestond uit psychotische patiënten uit de algemene psychiatrie zonder een persoonlijkheidsstoornis of een eerder delict. Deze patiënten waren tussen 20 en 50 jaar oud en werden gerekruteerd uit een verblijfsafdeling (minimale opnameduur van twee jaar); en groep C (n=5) bestond uit niet-psychotische TBS-gestelden met een persoonlijkheidsstoornis. Alle patiënten werden gematched voor geslacht (alleen mannelijk), leeftijd en etniciteit.

De drie groepen werden vergeleken op basis van bestaande gegevens. De anamnestiche, diagnostische en psychologische testgegevens werden retrospectief uit de rapportages pro justitia en intake interviews gehaald. Voor de groep B werden de medische-psychiatrische dossiers onderzocht, met speciale aandacht voor de voorgeschiedenis. Naast een lijst met sociodemografische, psychiatrische en criminologische variabelen gebaseerd op een review van de literatuur, werden de volgende instrumenten gebruikt om de voorlopers van delinquent gedrag te bepalen: psychosociale stressfactoren volgens de As IV van de DSM-IV, alsook relevante V-codes; de Child Behaviour Checklist (CBCL), de historische items van de HCR-20 en de familiale psychiatrische anamnese voor een stemmings- of een psychotische stoornis.

De verschillen tussen de persoonlijkheidsgestoorde en psychotische daders waren evident. Psychotische patiënten met of zonder delict daarentegen vertoonden een grote overeenkomst voor wat betreft hun symptomen. De psychotische daders hadden wel zelden psychiatrische hulp gekregen voorafgaand aan het index delict. Het leek erop dat het uitstellen van noodzakelijke zorg voor deze groep hen meer afwijzend in het maatschappelijk verkeer maakte, waardoor hun ziektebeeld verergerde en zij explosiever werden.

Hoofdstuk III

Diagnostische comorbiditeit bij psychotische daders en hun criminele voorgeschiedenis: een review

Er is toenemende evidentie dat er een relatie is tussen een psychotische stoornis en gewelddadig gedrag. Diagnostische comorbiditeit lijkt de kans op geweld te verhogen.

De doelstelling van deze review was om de literatuur op het gebied van de relatie tussen een psychotische stoornis en geweld, en op het gebied van de comorbiditeit van een psychotische stoornis met middelenmisbruik, een persoonlijkheidsstoornis en/of psychopathie te onderzoeken.

Een zoekbewerking op www.PubMed.com en www.PsychInfo.com leverde 1942 artikels op. Uiteindelijk bleven er slechts 73 over na het schrappen van die artikels met niet ter zake doende onderwerpen.

De rol van middelenmisbruik, de aanwezigheid van een persoonlijkheidsstoornis en een hoge score op de psychopathie checklist werden gezien als belangrijke risicofactoren door vele auteurs.

Deze review leverde een hoge graad van overeenstemming op dat de mogelijke comorbiditeit bij psychotische daders altijd moet nagekeken worden bij wetenschappelijk onderzoek omdat het een belangrijk effect heeft op het verder verloop van het ziektebeeld van de dader.

Hoofdstuk IV

Omgevingsrisico's bij psychotische daders en hun criminele voorgeschiedenis: een review

De auteurs presenteren hier de resultaten van een review van de literatuur tussen 1990 en 2006. Een zoekbewerking op www.PubMed.com en www.PsychInfo.com leverde 1942 artikels op, gebruik makend van de volgende zoektermen: (misdaad/geweld) EN (psychose/schizofrenie) EN (middelenmisbruik); (misdaad/geweld) EN

(psychose/schizofrenie) EN (persoonlijkheidsstoornis/psychopathie); of (misdaad/geweld) EN (psychose/schizofrenie) EN (jeugd). Uiteindelijk bleven er maar 29 artikels over na het schrappen van de artikels met niet ter zake doende onderwerpen. Deze review omvat de literatuur over de invloed van omgevingsrisico's waaraan gewelddadige psychotische daders zijn blootgesteld vanaf de kindertijd. De tijdsrelatie tussen een psychotische stoornis en criminaliteit, eerdere psychiatrische hulpverlening, de slachtoffers, psychosociale – en omgevingsproblemen en gedragsproblemen in de kindertijd en adolescentie worden in deze volgorde bediscussieerd.

Studies over de relatie tussen het eerste delict en de eerste psychotische episode, diagnose van schizofrenie en eerste opname in een algemeen psychiatrisch ziekenhuis leverden verschillende resultaten op. Het merendeel van de forensische patiënten had eerder contact met de algemene psychiatrie gehad vooraleer ze forensische patiënt werden, maar de kwaliteit van de psychiatrische zorg was ontoereikend. De slachtoffers van schizofrene patiënten waren meestal bekenden. Naast middelenmisbruik werd het gebrekkig sociaal functioneren gezien als een belangrijke risicofactor. Externaliserend gedrag in de kindertijd en adolescentie werd het vaakst gezien bij toekomstige schizofrene patiënten die delicten plegen. Samengevat kan gezegd worden dat het beoordelen van een patiënt met een psychotische stoornis nooit apart gezien mag worden van de omgeving waarin hij verkeert.

Hoofdstuk V

Gedragsproblemen in de kindertijd en adolescentie bij psychotische daders

Patiënten die een schizofrene stoornis ontwikkelen en een crimineel delict plegen op volwassen leeftijd hebben reeds gedragsproblemen in de kindertijd en de adolescentie. Een duidelijke relatie tussen antisociaal gedrag en/of een gedragsstoornis is aangetoond in verschillende studies. Gedragsproblemen, zoals gemeten met de Child Behavior Checklist (CBCL) zijn herhaaldelijk gedocumenteerd bij niet delinquente schizofrene patiënten. In dit artikel zullen we onze aandacht richten op gedragsproblemen in een forensisch psychiatrische populatie.

De doelstellingen van deze studie waren: de bruikbaarheid van de CBCL onderzoeken in een forensische populatie en de gevonden associaties beschrijven; en de impact van een comorbide persoonlijkheidsstoornis bij psychotische daders onderzoeken op de gedragsproblemen in de kindertijd en adolescentie.

Drie groepen van gewelddadige TBS-gestelden en één groep van psychotische patiënten uit de algemene psychiatrie (totale N=137) werden retrospectief gescoord op de CBCL.

Er was een significant verschil op de probleemschaal 'delinquent gedrag' tussen de psychotische daders met een persoonlijkheidsstoornis en de niet-delinquente patiënten met een psychose. Significante verschillen tussen psychotische daders met of zonder een persoonlijkheidsstoornis werden niet gevonden op de probleemschaal 'delinquent gedrag'. Een hiërarchische clusteranalyse leverde significant hogere scores voor externaliserend gedrag op bij psychotische en niet-psychotische TBS-gestelden met een persoonlijkheidsstoornis. Vroege starters hadden significant hogere scores op externaliserend gedrag, vergeleken met late starters. Externaliserend gedrag wordt vaker gezien bij psychotische daders met een persoonlijkheidsstoornis en niet-psychotische daders met een persoonlijkheidsstoornis. Deze twee groepen lijken op elkaar wat betreft de gedragsproblemen in de kindertijd en adolescentie. Daarnaast lijken de niet-delinquente patiënten met een psychose en de psychotische daders zonder een persoonlijkheidsstoornis ook op elkaar. Hogere scores voor internaliserend gedrag werden niet gezien in de groepen zonder een (comorbide) persoonlijkheidsstoornis. In tegenstelling tot de resultaten van de studies bij niet-forensische populaties waren er geen verschillen op de andere probleemschalen van de CBCL. Onze studie toonde aan dat de CBCL kan gebruikt worden bij een forensische populatie. De kleine patiëntenaantallen en de ontbrekende gegevens over de gedragsproblemen beperkten echter de conclusies die kunnen getrokken worden. De bevindingen zouden getoetst moeten worden in een grotere patiëntenpopulatie.

Hoofdstuk VI

Slachtoffers en psychosociale problemen bij psychotische TBS-gestelden

Gedurende de laatste zestien jaren is er slechts een kleine hoeveelheid literatuur over de sociodemografische karakteristieken bij daders met een Major Mental Disorder (MMD). De algemene opvatting is dat de combinatie van de MMD en leven in povere, stressvolle omstandigheden veel meer voorspellend voor het risico op geweld kan zijn dan de karakteristieken van sociale netwerken en relaties of elke klinische factor alleen. Op een meer persoonlijk vlak hebben gewelddadige daders met schizofrenie die familieleden aanvallen vaker vroegtijdig school onderbroken en hebben psychiatrische contacten in de kindertijd gehad, waren jonger bij de eerste onvrijwillige psychiatrische opname en waren jonger bij het plegen van het index delict.

De doelstelling van de huidige studie was om deze bevindingen te toetsen. Vier patiëntengroepen werden gevormd: drie groepen bestonden uit daders die een ernstig gewelddadig delict hadden gepleegd en een psychose of een persoonlijkheidsstoornis of een combinatie van beide hadden, en één groep was een psychotische populatie uit de algemene psychiatrie. Retrospectieve gegevens werden verzameld en de sociodemografische -, diagnostische - (DSM-IV) en psychiatrische voorgeschiedenis variabelen werden vergeleken. Ook As IV en As V van de DSM-IV werd meegenomen in de studie.

Er was een neiging tot veel meer partners als slachtoffers van TBS-gestelden met een persoonlijkheidsstoornis en veel meer zakelijke en hechte relaties, zoals hulpverleners, als slachtoffers van psychotische TBS-gestelden. De psychotische TBS-gestelden hadden niet minder psychosociale – en omgevingsproblemen gekend tot twee jaar voor het index delict. De psychotische TBS-gestelden zonder een persoonlijkheidsstoornis hadden meer sociale problemen en moeilijkheden gekend voordat ze toegang kregen tot de geestelijke gezondheidszorg. Bij de TBS-gestelden met een persoonlijkheidsstoornis waren de problemen verbonden met financiën en relaties.

Psychotische TBS-gestelden worden vaak uitgesloten van de zorg die ze nodig hebben. Als ze dan uiteindelijk de zorg krijgen, lopen de hulpverleners risico slachtoffer te worden van op hen gepleegd geweld.

Hoofdstuk VII

Tijdsrelatie tussen een psychotische stoornis en een crimineel delict

Gedurende de laatste 15 jaar is er weinig gepubliceerd over de tijdsrelatie tussen schizofrenie en misdaad. Veel forensische patiënten hebben een psychiatrische hulpverleningsgeschiedenis alvorens ze een delict plegen, maar die hulpverlening was vaak inadequaat. Comorbiditeit zoals een aan middelen gebonden stoornis en een antisociale persoonlijkheidsstoornis en/of psychopathie kunnen verantwoordelijk zijn voor een eerdere verwijzing van psychotische patiënten naar de psychiatrische zorg, in combinatie met vroege gedragsproblemen voortvloeiend uit die comorbiditeit. In aansluiting met de inadequate zorg voor forensische patiënten is het mogelijk dat de periode van onbehandelde psychose vaker voorkomt en van langere duur is, vergeleken met die periode bij niet-forensische psychotische patiënten.

Het doel van deze studie was om deze bevindingen te toetsen. Wij beschouwden drie groepen: twee groepen forensische patiënten met een psychotische stoornis, met of zonder een comorbide persoonlijkheidsstoornis, die een ernstig gewelddadig delict hebben gepleegd; en een derde groep van psychotische patiënten uit de algemene psychiatrie die geen delicten hebben gepleegd. Retrospectieve gegevens werden verzameld en de sociodemografische -, diagnostische (DSM-IV) – en psychiatrische voorgeschiedenis variabelen, alsook gegevens over middelenmisbruik, werden vergeleken. Ook de score op de PCL-SV werd meegenomen in het onderzoek.

Psychotische TBS-gestelden met een comorbide persoonlijkheidsstoornis begonnen hun psychiatrische carrière alvorens ze een gewelddadig delict pleegden. Er werd een lange tijd gevonden tussen de eerste opname en het TBS-delict. Psychopathie en middelenmisbruik beïnvloedden die intervallen. Geen verschil werd gevonden tussen psychotische TBS-gestelden en psychotische patiënten uit de algemene psychiatrie met betrekking tot de duur van de onbehandelde psychose.

Concluderend kan gesteld worden dat het onderkennen van verschillende groepen psychotische patiënten in de algemene psychiatrie zou een preventief effect kunnen hebben als de comorbiditeit wordt onderzocht.

Hoofdstuk VIII

De rol van middelenmisbruik bij psychotische versus persoonlijkheidsgestoorde TBS-gestelden

Patiënten met een psychische ziekte die ook alcohol of drugs gebruiken, hebben een groter aantal criminele veroordelingen. Vroege starters die hun eerste veroordeling hadden voor de leeftijd van 18 jaar hebben vaker een diagnose van middelenmisbruik en zijn vaker geïntoxiceerd ten tijde van het index delict, in vergelijking met late starters.

Deze studie onderzocht vier groepen van patiënten (totale N=137): drie groepen van daders met een gewelddadig delict (psychotische en persoonlijkheidsgestoorde daders) en één groep van niet-delinquente psychotische patiënten uit de algemene psychiatrie. Alle gegevens werden retrospectief verzameld.

De resultaten lieten zien dat vroege starters vaker geïntoxiceerd waren ten tijde van het index delict, op jongere leeftijd startten met middelenmisbruik en vaker een diagnose van middelenmisbruik hadden ten tijde van het index delict, in vergelijking met late starters. Persoonlijkheidsgestoorde daders waren vaker geïntoxiceerd en hadden vaker een eerdere diagnose van middelenmisbruik op het moment van het index delict, vergeleken met psychotische daders. In mindere mate hadden psychotische daders met een diagnose van een aan middelen gebonden stoornis of die geïntoxiceerd waren ten tijde van het index delict een criminologische voorgeschiedenis in vergelijking met persoonlijkheidsgestoorde daders.

We concludeerden dat middelenmisbruik heeft een verzwarend effect op criminogeen gedrag, afhankelijk van de leeftijd van eerste veroordeling en de diagnose.

Hoofdstuk IX

Psychotische symptomen en eerdere psychiatrische hulpverlening bij psychotische TBS-gestelden

Overeenkomstig de literatuur hadden de meeste psychotische daders contact met de algemene psychiatrie voorafgaand aan het index delict. De gekregen hulp was echter niet altijd in overeenstemming met hun nood. Comorbiditeit met een gedragsstoornis als jeugdige of een antisociale persoonlijkheidsstoornis kan de eerste psychiatrische opname beïnvloeden. De 'Deficient Affective Experience' (DAE) score is een graadmeter voor de emotionele disfunctie en een hogere score hierop verhoogt het risico op geweld naar anderen.

Vier groepen van patiënten (N = 137) met een geschiedenis van ernstige geweld-dadige delicten (geen seksuele delicten) werden gerekruteerd uit forensisch psychiatrische ziekenhuizen (TBS-klinieken) en één algemeen psychiatrisch ziekenhuis. De onderzoeksstrategie was retrospectief, waarbij alle informatie gehaald werd uit bestaande dossiers. Naast een lijst met sociodemografische, psychiatrische en criminologische variabelen, werden ook de HCR-20 H-items en de PCL-SV gebruikt. Een SPSS programma werd gebruikt om de data te analyseren.

Psychotische daders hadden meer negatieve symptomen en een hogere score op de DAE, maar hadden niet meer positieve symptomen. Zij hadden ook minder behandeling gekregen voorafgaand aan het index delict, zowel in de kinderjaren als op volwassen leeftijd. Aanbevelingen werden gedaan voor de forensische en de algemene psychiatrie.

Hoofdstuk X

Algemene conclusies, discussie van de methodologie en aanbevelingen

Er zijn maar beperkte verschillen tussen psychotische TBS-gestelden en psychotische patiënten uit de algemene psychiatrie. Het lijkt erop dat het uitstellen van noodzakelijke zorg voor de psychotische TBS-gestelden hen meer afwijzend in het maatschappelijk verkeer maakt, waardoor hun ziektebeeld verergert en zij explosiever worden. De comorbiditeit van een psychotische stoornis met een

persoonlijkheidsstoornis levert wel belangrijke verschillen op als we de groep psychotische TBS-gestelden met een persoonlijkheidsstoornis vergelijken met de groep psychotische TBS-gestelden zonder een persoonlijkheidsstoornis. De verschillen tussen de persoonlijkheidsgestoorde en psychotische TBS-gestelden zijn evident. De persoonlijkheidsgestoorde TBS-gestelden hadden significant meer aandachtsproblemen, in vergelijking met psychotische TBS-gestelden. Hun slachtoffers waren vooral partners en hun GAF-score was significant hoger, vergeleken met psychotische TBS-gestelden. Bij de persoonlijkheidsgestoorde TBS-gestelden waren er vooral problemen rondom financiën en relaties. Middelenmisbruik bij persoonlijkheidsgestoorde TBS-gestelden past bij een criminele voorgeschiedenis, terwijl dit bij psychotische TBS-gestelden direct gerelateerd is aan de psychotische stoornis en minder aan de criminele omgeving waarin ze zich bevinden. Tenslotte werden meer persoonlijkheidsgestoorde TBS-gestelden geplaatst in een instituut, maar werden er minder behandeld in een psychiatrisch ziekenhuis, vergeleken met psychotische TBS-gestelden.

Inzake de methodologie, moet benadrukt worden dat de psychotische TBS-gestelden zijn maar een kleine representatie van alle psychotische daders in Nederland. De internationale literatuur op het gebied van een psychotische stoornis en ernstig gewelddadig gedrag heeft meestal betrekking op daders die in de algemene psychiatrie verblijven. Dit onderzoek was een multicenter, retrospectief onderzoek, gebaseerd op klinische dossiers die met name voor klinische doeleinden dienen, maar veel minder voor onderzoeksdoeleinden. Ook was er geen of nauwelijks standaard diagnostische instrumentarium voorhanden en kunnen de relatief kleine groepen de conclusies beperken die kunnen getrokken worden. Daarentegen slaagden we er wel in om zelf een lijst met variabelen op te stellen, uitgaande van de literatuur op het gebied van de relatie tussen een psychotische stoornis en ernstig gewelddadig gedrag.

De volgende aanbevelingen kunnen gemaakt worden:

- 1) Een kind of jeugdige die verhoogde probleemschalen op het gebied van externaliserend gedrag laat zien volgens de CBCL, kan op volwassen leeftijd ernstige problemen vertonen. Deze patiënten lopen het risico om een ernstig psychiatrisch ziektebeeld te ontwikkelen, zoals schizofrenie al dan niet in combinatie met een persoonlijkheidsstoornis van het cluster B-type. Daarom is

- het belangrijk om die probleemkinderen te kunnen volgen tot in de adolescentie en op volwassen leeftijd;
- 2) De slachtoffers van psychotische TBS-gestelden zijn vooral bekenden, en zoals blijkt uit onze studie vooral hulpverleners. Het is daarom belangrijk dat hulpverleners in de forensische en de algemene psychiatrie goed getraind zijn en pro-actief handelen om agressie te anticiperen;
 - 3) Het zou goed zijn dat de algemene psychiatrie zich gaat verdiepen in de PCL-R, om de vier relevante items voor de DAE goed te kunnen scoren;
 - 4) Psychotische patiënten moeten veel te lang wachten vooraleer zij psychiatrische zorg krijgen. Een belangrijke oorzaak hiervoor is dat de huidige BOPZ-wetgeving is teveel gebaseerd op het gevaarscriterium. Een behandelwet en een lange teugelbeleid om ernstig zorgbehoeftige patiënten langdurig op te volgen is noodzakelijk;
 - 5) Een differentiatie op basis van comorbiditeit (psychotische TBS-gestelden met of zonder een persoonlijkheidsstoornis) is klinisch bruikbaar voor het organiseren van afdelingen, de zorgprogrammering en het uitstroomtraject naar de algemene psychiatrie;
 - 6) Een dimensionele benadering van persoonlijkheidsstoornissen is wenselijk, zeker in de forensische psychiatrie;
 - 7) In de behandeling moet er meer aandacht geschonken worden aan financiën en relaties, in het bijzonder bij persoonlijkheidsgestoorde TBS-gestelden;
 - 8) Ook moet middelenmisbruik c.q. – afhankelijkheid een belangrijkere plaats krijgen in de diagnostiek en de behandeling van alle TBS-gestelden;
 - 9) Bij vervolgonderzoek is de koppeling gewenst met biologische parameters en medische beeldvorming;
 - 10) Tenslotte zijn voor vervolgonderzoek grotere patiëntenaantallen gewenst, maar onderzoek naar forensische aspecten bij psychotische patiënten uit de algemene psychiatrie is ook zinvol.

Het is een vaststaand feit dat dit exploratief onderzoek twee belangrijke consequenties heeft opgeleverd voor het denken over psychotische TBS-gestelden: ten eerste zijn psychotische patiënten en daders veel gevoeliger voor hun omgeving; ten tweede is het heel belangrijk om de comorbiditeit met een persoonlijkheidsstoornis, psychopathie en/of middelenmisbruik goed te diagnosticeren en te behandelen.

SUMMARY

Chapter I

General introduction

In the literature on mental disorders and violence, we find primarily three types of study: studies of unselected birth cohorts in the general population, studies of the prevalence of Major Mental Disorders among convicted offenders in prison, and follow-up studies of psychiatric patients that have returned to society. This distinction between the three types is important because the relationship between mental disorders and delinquency will be stronger in the latter two types than in studies carried out in the general population.

The goals of this thesis are: to determine the relationship between a psychotic disorder and serious violent behaviour that has led to detention; to describe the differences and similarities between psychotic patients in general psychiatry and psychotic offenders, with special attention to their prior history; and finally, to investigate the effects of comorbidity and environmental risk factors in psychotic offenders.

In the Dutch judicial system, detention under the Entrustment Act is possible when the following criteria are fulfilled: there must be an offence for which imprisonment for at least four years is possible; there must have been a mental disorder such as a psychosis or a defective development of the mental capabilities (a personality disorder or mental retardation) at the moment of the offence; as a result of this disorder, there is an unacceptable risk of a new offence for which detention under the Entrustment Act could be imposed.

Chapter II

Patients and methods: the pilot study

The purpose of the pilot study was to assess the feasibility of the investigation. In this connection, the following specific questions were of importance: What is the

quality of the data? Can the question that is posed be answered on the basis of the available data? Is the proposed methodology usable?

Three groups of patients were created: group A (n=5) consisted of psychotic TBS-detainees without a personality disorder, group B (n=5) consisted of psychotic patients from general psychiatry without a personality disorder or a prior offence. These patients were between the ages of 20 and 50 and were recruited from a long-stay ward (minimum duration of hospitalisation of two years); and group C (n=5) consisted of non-psychotic TBS-detainees with a personality disorder. All patients were matched for gender (only males), age and ethnic origin.

The three groups were compared on the basis of existing data. The anamnestic, diagnostic and psychological test data were retrieved retrospectively from reports to the court and intake interviews. In the case of group B, the medical/psychiatric files were examined, with special attention to the prior history. In addition to a list of sociodemographic, psychiatric and criminological variables, based on a review of the literature, the following instruments were used to measure the precursors of delinquent behaviour: psychosocial stress factors according to Axis IV of the DSM IV, as well as the relevant V-codes; the Child Behavior Checklist (CBCL), the historical items of the HCR-20, and the familial psychiatric history with regard to a mood disorder or psychosis.

The differences between personality disordered and psychotic offenders were evident. On the other hand, there was a great similarity in the symptoms of all psychotic patients, with or without a prior offence. However, the psychotic offenders had rarely been given psychiatric care prior to the index offence. It seems as if the postponement of the necessary care in this group strengthened their rejection of society, thus aggravating their illness and making them more explosive.

Chapter III

Diagnostic comorbidity in psychotic offenders and their prior criminal history: a review

There is increasing evidence of a relationship between a psychotic disorder and violent behaviour. Diagnostic comorbidity seems to increase the risk of violence. The purpose of this review was to examine the literature in the area of the relationship between a psychotic disorder and violence and in the area of the comorbidity of a psychotic disorder and substance abuse, a personality disorder and/or psychopathy.

A search of www.PubMed.com and www.PsychInfo.com yielded 1942 articles. Ultimately, only 73 remained after deletion of the articles on irrelevant subjects. Substance abuse, the presence of a personality disorder, and a high score on the psychopathy checklist were considered by many authors to be important risk factors.

This review yielded a high degree of agreement that the possible comorbidity in psychotic offenders should always be considered in scientific research because it has an important effect on the further course of the offender's illness.

Chapter IV

Circumstantial risks in psychotic offenders and their prior criminal history: a review

Here, the authors present the results of a review of the literature between 1990 and 2006. A search of www.PubMed.com and www.PsychInfo.com using the following search terms: (crime/violence) AND (psychosis/schizophrenia) AND (substance abuse); (crime/violence) AND (psychosis/schizophrenia) AND (personality disorder/psychopathy); or (crime/violence) AND (psychosis/schizophrenia) AND (adolescence) yielded 1942 articles. Ultimately, only 29 articles remained after deleting the articles on irrelevant subjects. This review covers the literature on the effect of the environmental risk factors to which violent psychotic offenders have been exposed since childhood. The temporal relationship between a psychotic disorder and criminality, prior psychiatric care, the victims, psychosocial and

environmental problems and behaviour problems during childhood and adolescence are discussed in that order.

Studies on the relationship between the first offence and the first psychotic episode, the diagnosis of schizophrenia and the first admission to a general psychiatric hospital yielded variable results. Most of the forensic patients had had prior contact with general psychiatry before they became a forensic patient, but the quality of the psychiatric care was insufficient. The victims of schizophrenic patients were usually people they knew. In addition to substance abuse, defective social functioning was considered to be an important risk factor. Externalising behaviour during childhood and adolescence was seen most often in future schizophrenic patients that would commit an offence. In summary, one can conclude that the assessment of a psychotic disorder should never be seen separately from the surrounding environment.

Chapter V

Behaviour problems during childhood and adolescence in psychotic offenders

Patients that develop a schizophrenic disorder and commit a criminal offence as adults already had behaviour problems during childhood and adolescence. Various studies have demonstrated a clear relationship between antisocial behaviour and/or a behaviour disorder. Behaviour problems, as measured with the Child Behavior Checklist (CBCL), have been documented repeatedly in non-delinquent schizophrenic patients. In this chapter, we will turn our attention to behaviour problems in a forensic psychiatric population.

The goals of this study were: to investigate the usefulness of the CBCL in a forensic population and describe the associations found; and to investigate the impact of a comorbid personality disorder in psychotic offenders on the behaviour problems during childhood and adolescence.

Three groups of violent TBS-detainees and one group of psychotic patients from general psychiatry (total N=137) were scored on the CBCL retrospectively. There was a significant difference on the 'delinquent behavior' problem scale

between the psychotic offenders with a personality disorder and the non-delinquent patients with a psychosis. Significant differences between psychotic offenders with or without a personality disorder were not found on the 'delinquent behavior' problem scale. A hierarchic cluster analysis yielded significantly higher scores for externalising behaviour in both psychotic and non-psychotic TBS-detainees with a personality disorder. Early starters had significantly higher scores for externalising behaviour than late starters.

Externalising behaviour is seen more often in both psychotic and non-psychotic offenders with a personality disorder. These two groups resemble one another with regard to the behaviour problems during childhood and adolescence. The non-delinquent patients with a psychosis and the psychotic offenders without a personality disorder also resemble each other. Higher scores for internalising behaviour were not seen in the groups without a (comorbid) personality disorder. In contrast to the results of studies with non-forensic populations, there were no differences on the other problem scales of the CBCL. Our study showed that the CBCL can be used in a forensic population. However, the small numbers of patients and the lack of data on the behaviour problems limit the conclusions that can be drawn. The findings should be verified in a larger patient population.

Chapter VI

Targets of violence and psychosocial problems in psychotic offenders

During the past 16 years, there have been few articles on the sociodemographic characteristics of offenders with a Major Mental Disorder (MMD). The general opinion is that the combination of a MMD and life under poor, stressful circumstances may be much more predictive of a risk of violent behaviour than the characteristics of social networks and relationships or each clinical factor independently. On a more personal level, violent offenders with schizophrenia who attack other members of the family have more often left school early and had psychiatric contacts during childhood, were younger at the time of the first involuntary psychiatric admission, and were younger when they committed the index offence.

The purpose of the present study was to verify these findings. Four groups of patients were created: three of these consisted of offenders who had committed a serious violent offence and had a psychosis, a personality disorder or a combination of both, and one group consisted of a psychotic population from general psychiatry. Retrospective data were collected and the sociodemographic and diagnostic variables (DSM IV) and prior psychiatric history were compared. Axes IV and V of DSM IV were also considered in the study.

There was a strong tendency for the victims of TBS-detainees with a personality disorder to be the partner and for the victims of psychotic TBS-detainees to be persons in a businesslike or close relationship, such as care givers. Up to two years before the index offence, the psychotic TBS-detainees had not had fewer psychosocial and environmental problems. The psychotic TBS-detainees without a personality disorder had had more social problems and difficulties before they were given access to mental healthcare. Among the TBS-detainees with a personality disorder, there were more problems associated with finances and relationships.

Psychotic TBS-detainees are often deprived of the care that they need. When they ultimately receive the care, the care givers run a risk of becoming the victims of violence directed at them.

Chapter VII

Temporal relationship between a psychotic disorder and a criminal offence

There have been few articles during the past 15 years about the temporal relationship between schizophrenia and crime. Many forensic patients already have a history of prior psychiatric care before they commit an offence, but the care given was often inadequate. Comorbidity such as a substance-related disorder and an antisocial personality disorder and/or psychopathy can be responsible for an earlier referral of psychotic patients to psychiatric care, in combination with early behaviour problems resulting from the comorbidity. In combination with the inadequate care for forensic patients, it is possible that the period of untreated psychosis is longer and occurs more often than the same period in non-forensic psychotic patients.

The purpose of this study was to verify these findings. We examined three groups: two groups of forensic patients with a psychotic disorder, with or without a comorbid personality disorder, who had committed a serious violent offence; and a third group of psychotic patients from general psychiatry who had not committed an offence. Retrospective data were collected and the sociodemographic and diagnostic variables (DSM IV) and prior psychiatric history were compared, as well as the data on substance abuse. The score on the PCL-SV was also considered in the study.

Psychotic TBS-detainees with a comorbid personality disorder started their psychiatric career before committing a violent offence. There was a long delay between the first admission and the TBS-offence. Psychopathy and substance abuse affected these time intervals. There was no difference between psychotic TBS-detainees and psychotic patients from general psychiatry with regard to the duration of the untreated psychosis.

It can be concluded that the recognition of different groups of psychotic patients in general psychiatry could have a preventive effect if the comorbidity were also investigated.

Chapter VIII

The role of substance abuse in psychotic versus personality disordered TBS-detainees

Patients with a mental illness who also use drugs or alcohol have a higher number of criminal convictions. Early starters who had their first conviction before the age of 18 more often have a diagnosis of substance abuse and were more often intoxicated at the time of the index offence than late starters.

This study examined four groups of patients (total N=137): three groups of offenders who had committed a violent offence (psychotic and personality disordered offenders) and one group of non-delinquent psychotic patients from general psychiatry. All of the data were collected retrospectively.

The results showed that early starters were more often intoxicated at the time of the index offence, had started with substance abuse at a younger age, and more often had a diagnosis of substance abuse at the time of the index offence than late starters. Personality disordered offenders were more often intoxicated and more often had a prior diagnosis of substance abuse at the time of the index offence than psychotic offenders. Psychotic offenders with a diagnosis of a substance-related disorder or who had been intoxicated at the time of the index offence were less likely than personality disordered offenders to have a prior criminal history.

We concluded that substance abuse has an aggravating effect on criminal behaviour, depending on the diagnosis and the age at first conviction.

Chapter IX

Psychotic symptoms and prior psychiatric care among psychotic offenders

In agreement with the literature, most of the psychotic offenders had had contact with general psychiatry prior to the index offence. However, the care given them was not always in agreement with their needs. Comorbidity with a behaviour disorder while young or an antisocial personality disorder may affect the first psychiatric admission. The 'Deficient Affective Experience' (DAE) score is a measure of emotional dysfunction and a higher score on this scale increases the risk of violence directed at others.

Four groups of patients (total N=137) with a history of serious violent offences (no sex offences) were recruited from forensic psychiatric hospitals (TBS-clinics) and one general psychiatric hospital. The study strategy was retrospective, all of the information being retrieved from existing files. In addition to a list with sociodemographic, psychiatric and criminological variables, the HCR-20 H-items and the PCL-SV were also used. An SPSS programme was used to analyse the data.

Psychotic offenders had more negative symptoms and a higher score on the DAE, but did not have more positive symptoms. They had also received less treatment prior to the index offence, both during childhood and as adults. Recommendations were made for both forensic and general psychiatry.

Chapter X

General conclusions, discussion of the methodology, and recommendations

The differences between psychotic TBS-detainees and psychotic patients from general psychiatry are limited. It seems that the postponement of the necessary care for psychotic TBS-detainees strengthens their rejection of society, thus aggravating their illness and making them more explosive. When we compare the group of psychotic TBS-detainees with a personality disorder with the group of psychotic TBS-detainees without a personality disorder, then the comorbidity of a psychotic disorder together with a personality disorder is seen to produce important differences. The differences between the personality disordered and psychotic TBS-detainees are evident. The personality disordered TBS-detainees had significantly more attention problems than the psychotic TBS-detainees. Their victims were mainly partners and their GAF-scores were significantly higher than those of the psychotic TBS-detainees. The personality disordered TBS-detainees had mainly problems around finances and relationships. Substance abuse among personality disordered TBS-detainees is associated with a prior criminal history, while among psychotic TBS-detainees it is directly related to the psychotic disorder and less to the criminal surroundings in which they find themselves. Finally, compared to psychotic TBS-detainees, more personality disordered TBS-detainees had been institutionalised but fewer had been treated in a psychiatric hospital.

With regard to the methodology, it must be emphasised that the psychotic TBS-detainees represent only a small fraction of all psychotic offenders in the Netherlands. The international literature in the area of a psychotic disorder and severe violent behaviour usually pertains to offenders than remain in general psychiatry. This study was a multicentre, retrospective study based on clinical files that were intended primarily for clinical purposes and less for research ends. There was also practically no standard diagnostic instrumentarium and the relatively small groups may well limit the conclusions that can be drawn. On the other hand, we did succeed in drawing up our own list of variables, based on the literature in the area of the relationship between a psychotic disorder and serious violent behaviour.

The following recommendations can be made:

- 1) A child or adolescent with high scores for externalising behaviour on the problem scales of the CBCL may develop serious problems as an adult. These patients run a risk of developing a serious psychiatric illness, such as schizophrenia, alone or in combination with a personality disorder of the cluster B type. It is therefore important to follow such problem children into adolescence and adulthood;
- 2) As demonstrated by our study, the victims of psychotic TBS-detainees are mainly persons they know and especially care givers. It is therefore important that care givers in forensic and general psychiatry be well trained and take proactive action to anticipate aggression;
- 3) It would be a good thing if general psychiatry would increase its familiarity with the PCL-R so that the four relevant items for the DAE can be scored accurately;
- 4) Psychotic patients must wait far too long before they are given psychiatric care. An important reason for this is that the current legislation on involuntary admission to psychiatric hospitals is based too heavily on the danger criterion. A treatment act and a policy of loose reins so that patients in severe need of care can be followed up for long periods are necessary;
- 5) A differentiation on the basis of comorbidity (psychotic TBS-detainees with or without a personality disorder) is clinically useful for the organisation of wards, the programming of care, and the discharge of patients to general psychiatry;
- 6) A dimensional approach to personality disorders is desirable, certainly in forensic psychiatry;
- 7) During treatment, increased attention should be given to financial aspects and relationships, especially in the case of personality disordered TBS-detainees;
- 8) Substance abuse or dependence should also be given a more important place in the diagnosis and treatment of all TBS-detainees;
- 9) A coupling between biological parameters and medical imaging would be desirable in future research;
- 10) Finally, larger numbers of patients would be desirable for future research, but a study of the forensic aspects in psychotic patients from general psychiatry would also be useful.

It is an established fact that this exploratory study has had two important consequences for our thoughts regarding psychotic TBS-detainees: first of all,

psychotic patients and offenders are much more sensitive to their surroundings; secondly, it is very important that comorbidity with a personality disorder, psychopathy and/or substance abuse be accurately diagnosed and appropriately treated.

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Curriculum Vitae

Kris Goethals was born on 1 December 1969 in Blankenberge, Belgium. He studied medicine at the University of Ghent, Belgium from 1988 through 1995, where he received his doctor's diploma in July 1995. From 1993 through 1995 he studied general pedagogics, special medical pedagogics, methodology and adolescent psychology at the same university, and gave a variety of lessons to medical students. As a result, he was qualified as a teacher. His training in psychiatry lasted from 1995 through 2000. During the first three years he worked as a trainee in the Stuivenberg Hospital in Antwerp, Belgium. He rotated through a variety of departments, namely a closed ward for psychotic patients, an open ward for neurotic and mood disorders, a department for emergency psychiatric intervention, and the psychiatric liaison unit of this hospital. From 1998 to 1999 he took an optional course in forensic psychiatry, partly in the University Forensic Centre of the University of Antwerp (specialised ambulatory care for sex offenders) and partly in the Merksplas prison, Belgium. Finally, he took a one-year course in neurology in the Canisius-Wilhelmina Hospital in Nijmegen, the Netherlands (1999-2000). During three of the years that he was being trained in psychiatry (1996-1999), he took a specialised course in psychoanalytical psychotherapy at the Catholic University of Louvain, Belgium. Thanks in part to his term paper on 'Perversion and narcissism', he received a diploma in psychoanalytical psychotherapy.

In 2000 he was certified as a psychiatrist, after which he began working as the treatment coordinator and psychiatrist in two wards for psychotic patients at the Pompe Foundation in Nijmegen, the Netherlands. After four-and-a-half years he was appointed interim manager for patient care in the Care Oriented Division (units for psychotic patients) of the Pompe Foundation. Starting in May 2006 he was appointed manager for patient care in one of the clusters for personality disorders and continued his work as liaison-psychiatrist in the resocialisation department for psychotic patients. He bore the final responsibility for the creation of care programmes for TBS-detainees with a psychotic vulnerability and for TBS-detainees with a personality disorder who had committed a violent offence. In addition to his clinical work, he is active as a psychiatrist-psychotherapist in a private practice in Hove, Belgium.

His doctoral research started officially in 2002. He has regularly given lectures on the various parts of this thesis, both here and abroad. Most of these parts have meanwhile been published or accepted for publication in international peer-reviewed journals.

Appendices

Appendix I Criminological history variables

1. General records:

- date of the index offence:
- type of offence;
- aggression; instrumental – reactive

2. Situational and contextual factors:

- civil status at the time of the index offence (single/divorced, married, cohabiting)
- employment status at the time of the index offence (employed, studying, unemployed)
- domiciliary status at the time of the index offence (own home, with parents, shared household, homeless, hospitalised)
- relationship with the victim (husband/wife, relative, partner, friend/acquaintance, caregiver, unknown)
- sex and age of the victim (male, female, child, adult, no victim)
- use of a gun at the time of the index offence (shotgun, stabbing weapon, no stabbing weapon, others, none)
- intoxicated at the time of the index offence – offender (yes/no)
 - if yes:
 - alcohol: yes/no
 - soft drugs: yes/no
 - hard drugs: yes/no
- intoxicated at the time of the index offence – victim (yes/no)
 - if yes:
 - alcohol: yes/no
 - soft drugs: yes/no
 - hard drugs: yes/no

3. Motives for the index offence:

- delusions
- hallucinations
- thought insertion

- without a motive
- sexual satisfaction
- pathological jealousy
- material motive
- panic
- self-defence
- immediate reaction to provocation
- calculated revenge
- accident
- others

4. Registered criminality previous to the index offence:

- previous convictions due to an offence: yes/no
- incarceration in a judicial institution as a young person:
 - no
 - once
 - several times
- stay in a judicial treatment institution (youth TBR, PiBB or PJI) as a young person:
 - no
 - once
 - several times
- age at first conviction:
 - early starter
 - late starter
- number of previous offences, including
 - number of violent offences:
 - number of sex offences:
 - number of offence against property

Appendix II (Familial) psychiatric variables

1. Psychiatric diagnosis according to the DSM-IV:

At the time of the index offence:

Axis I:

Axis II:

Axis III:

Axis IV:

Axis V:

Current diagnosis:

Axis I:

Axis II:

Axis III:

Axis IV:

Axis V:

Intelligence:

WAIS:

VIQ:

PIQ:

TIQ:

RAVEN:

2. Somatic records from the PBC-files (Pieter Baan Centre):

- internal medicine investigation:
- neurological investigation:
- EEG:

3. Features of the psychosis:

- onset:
- first psychotic episode: yes/no
- offence before/after/at the time of the psychotic episode
- features of the psychosis (three-factors model of schizophrenia) (in each case yes or no)
 - psychomotor poverty:

- paucity of expressive gestures:
 - lack of vocal inflections:
 - unchanging facial expression:
 - decreased spontaneous movements:
 - poor eye contact:
 - affect non-responsivity:
 - poverty of speech:
 - increased latency of response:
 - physical anergia:
 - lack of recreational interests and activities:
 - inability to feel intimacy and closeness:
 - social inattentiveness:
 - inpersistence at work or school:
 - few relationships with friends and peers:
-
- cognitive disorganisation:
 - lapse:
 - superficiality:
 - illogicality:
 - elaborateness:
 - poverty of content of speech:
 - delusions of persecution:
 - aggressive and agitated behaviour:
 - inadequate affect:
-
- reality distortion:
 - delusions of being controlled:
 - thought insertion:
 - delusions of mind reading:
 - auditory hallucinations:
 - voices commenting:
 - delusions of reference:
 - thought broadcasting:
 - religious delusions:
 - grandiose delusions:

- thoughts to hurt somebody physically in the past 2 months?

- yes

- no

4. Circumstances in the past 6 months before the index offence:

- psychiatric contact 6 months before the index offence (yes/no)

- if yes: date

- psychiatric admission 6 months before the index offence (yes/no)

- if yes: date

- psychiatric treatment status at the time of the index offence (admitted, leave, escaped, ambulatory, no contact)

- use of psychotropic drugs: yes/no

- if yes: which? (trade name, eventually generic name, dose, start)

- antipsychotics: yes/no

- if no: quited? yes/no

- if yes: how long before the index offence (in weeks)?

- antidepressants: yes/no

- if no: quited? yes/no

- if yes: how long before the index offence (in weeks)?

- anxiolytics: yes/no

- if no: quited? yes/no

- if yes: how long before the index offence (in weeks)?

- mood stabilizers: yes/no

- if no: quited? yes/no

- if yes: how long before the index offence (in weeks)?

- hypnotics: yes/no

- if no: quited? yes/no

- if yes: how long before the index offence (in weeks)?

- other drugs: yes/no

- if no: quited? yes/no

- if yes: how long before the index offence (in weeks)?

5. Familiar anamnesis:

- substance abuse in biological father:

- alcohol: yes/no

- soft drugs (weed/hash): yes/no
- hard drugs (speed/cocaine/pills/LSD/XTC/magic mushrooms/glue): yes/no
- not applicable (unknown biological father)
- unknown
- unclear
- psychiatric diagnosis in biological father:
 - psychotic disorder: yes/no
 - if yes:
 - schizophrenia: yes/no
 - delusional disorder: yes/no
 - mania (bipolar disorder): yes/no
 - other psychotic disorder: yes/no
 - personality disorder: yes/no
 - if yes:
 - antisocial personality disorder: yes/no
 - other cluster B personality disorder: yes/no
 - other personality disorder (cluster A or cluster C):
yes/no
 - not applicable (unknown biological father)
 - unknown
 - unclear
- highest educational level of biological father completed:
 - none
 - primary school
 - lower secondary education
 - intermediate secondary education
 - higher secondary education
 - college/university
 - not applicable
 - unclear
 - unknown
- biological father came into contact with the law:
 - no
 - yes, once on account of
 - violent offence: yes/no

- sexual offence: yes/no
- offence against property: yes/no
- yes, several times on account of
 - violent offence: yes/no (number)
 - sexual offence: yes/no (number)
 - offence against property: yes/no (number)
- not applicable (no known biological father)
- unclear
- unknown
- biological father served in jail: yes/no
- substance abuse in biological mother:
 - alcohol: yes/no
 - soft drugs (weed/hash): yes/no
 - hard drugs (speed/cocaine/pills/LSD/XTC/magic mushrooms/glue):
yes/no
 - not applicable (unknown biological mother)
 - unknown
 - unclear
- psychiatric diagnosis in biological mother:
 - psychotic disorder: yes/no
 - if yes:
 - schizophrenia: yes/no
 - delusional disorder: yes/no
 - mania (bipolar disorder): yes/no
 - other psychotic disorder: yes/no
 - personality disorder: yes/no
 - if yes:
 - antisocial personality disorder: yes/no
 - other cluster B personality disorder: yes/no
 - other personality disorder (cluster A or cluster C):
yes/no
 - not applicable (unknown biological mother)
 - unknown
 - unclear

- highest educational level of biological father completed:

- none
- primary school
- lower secondary education
- intermediate secondary education
- higher secondary education
- college/university
- not applicable
- unclear
- unknown

- biological mother came into contact with the law:

- no
- yes, once on account of
 - violent offence: yes/no
 - sexual offence: yes/no
 - offence against property: yes/no
- yes, several times on account of
 - violent offence: yes/no (number)
 - sexual offence: yes/no (number)
 - offence against property: yes/no (number)
- not applicable (no known biological mother)
- unclear
- unknown

- biological mother served in jail: yes/no

6. Psychiatric antecedents:

- contact with social authority before the age of 18 years old: yes/no
- placing in a foster family: yes/no
- placing in a institution: yes/no
- head trauma (with consciousness) in the antecedents: yes/no
- diagnosis of 'Conduct Disorder' as a child: yes/no
- pervasive developmental disorder as a child: yes/no
- posttraumatic stress disorder (PTSD) as a child: yes/no
- attention-deficit/hyperactivity disorder (ADHD) as a child: yes/no
- oppositional defiant disorder (ODD) as a child: yes/no

- treatment in child psychiatry inpatient care: yes/no
- treatment in a adult ward of a psychiatric hospital: yes/no
- age at first admission to hospital:
- involuntary psychiatric admission to hospital: yes/no
- total duration of the psychiatric treatment in hospital: 0 months/ 0-6 months/6.5 – 24 months/24.5 – 60 months/>60 months
- total number of psychiatric treatment episodes:
- suicide attempts: yes/no

Appendix III Sociodemographic variables

1. Patient's records:

- date of birth:
- native country:
 - 1 the Netherlands
 - 2 other Western country, namely ...
 - 3 Surinam
 - 4 the Netherlands Antilles
 - 5 Morocco
 - 6 Turkey
 - 7 East European country, namely ...
 - 8 the Balkans country, namely ...
 - 9 Russia/Georgia
 - 10 Iran/Iraq
 - 11 Indonesia
 - 12 other African country, namely ...
 - 13 other Asian country, namely ...
 - 14 other South American country, namely ...
- country of nationality:
 - 1 the Netherlands
 - 2 other Western country, namely ...
 - 3 Surinam
 - 4 the Netherlands Antilles

- 5 Morocco
- 6 Turkey
- 7 East European country, namely ...
- 8 the Balkans country, namely ...
- 9 Russia/Georgia
- 10 Iran/Iraq
- 11 Indonesia
- 12 other African country, namely ...
- 13 other Asian country, namely ...
- 14 other South American country, namely ...
- Ethnic origin:
 - European
 - Surinamese
 - Antillean
 - North African
 - Turkish
 - Eastern European
 - the Balkans
 - Russian/Georgian
 - Iranian/Iraqi
 - Indonesian
 - other African
 - other Asian
 - other South American
- immigration: yes/no
- age at immigration:
- history of developmental retardation: yes/no
- adopted child: yes/no
- civil status;
 - single
 - ever married
- children: yes/no
- highest educational level completed:
 - none
 - primary school

- lower secondary education
- intermediate secondary education
- higher secondary education
- college/university
- other, namely ...
- bad marks at school: yes/no
- lifetime job practice < 6 months: yes/no

2. Records of the original family.

- physical illness in one of the parents:
 - yes
 - no
 - unclear
 - unknown
- parental conflict:
 - yes
 - no
 - unclear
 - unknown
- parental violence (towards patient):
 - yes
 - no
 - unclear
 - unknown
- parental neglect:
 - yes
 - no
 - unclear
 - unknown
- bad relationship with child:
 - yes
 - no
 - unclear
 - unknown
- bad parenthood:

- yes
- no
- unclear
- unknown
- sexual abuse:
 - yes
 - no
 - unclear
 - unknown
- poverty
 - yes
 - no
 - unclear
 - unknown

Appendix IV Index admission variables (only for control group B)

1. General records:

- date of the index admission:
- aggression before or during: yes/no
 - beginning since?
 - intensity of aggression;
 - aggression towards others: yes/no
 - if yes:
 - verbal threats: yes/no
 - physical aggression: yes/no
 - severe injury: yes/no
 - death: yes/no
 - aggression towards oneself: yes/no
 - if yes:
 - verbal threats: yes/no
 - physical aggression: yes/no
 - severe injury: yes/no
- arson: yes/no

- aggression: instrumental/reactive
- aggression before/during/after psychosis
- involuntary index admission: yes/no
 - if yes:
 - RM: yes/no (hoe vertalen: rechterlijke machtiging)
 - IBS: yes/no (hoe vertalen: inbewaringstelling)
 - others (specify):

2. Situational and contextual factors:

- civil status at the time of the index admission(single/divorced, married, cohabiting)
- employment status at the time of the index admission(employed, studying, unemployed)
- domiciliary status at the time of the index admission (own home, with parents, shared household, homeless, hospitalised)
- relationship with the victim (husband/wife, relative, partner, friend/acquaintance, caregiver, unknown, no victim)
- sex and age of the victim (male, female, child, adult, no victim)
- use of a gun at the time of the index admission (shotgun, stabbing weapon, no stabbing weapon, others, none)
- intoxicated at the time of the index admission – patient (yes/no)
 - if yes:
 - alcohol: yes/no
 - soft drugs: yes/no
 - hard drugs: yes/no
- intoxicated at the time of the index admission– victim (yes/no)
 - if yes:
 - alcohol: yes/no
 - soft drugs: yes/no
 - hard drugs: yes/no

3. Motives for the index admission:

- delusions
- hallucinations
- thought insertion
- without a motive
- sexual satisfaction

- pathological jealousy
- material motive
- panic
- self-defence
- immediate reaction to provocation
- calculated revenge
- accident
- others

4. Registered aggression previous to the index admission:

- number of admissions:
- number of admissions with aggression:
- Specify the admissions with aggression (from the last one to the first one):
- Admission 1 to 5 (if applicable)
- date of admission:
- intensity of aggression;
 - aggression towards others: yes/no
 - if yes:
 - verbal threats: yes/no
 - physical aggression: yes/no
 - severe injury: yes/no
 - death: yes/no
 - aggression towards oneself: yes/no
 - if yes:
 - verbal threats: yes/no
 - physical aggression: yes/no
 - severe injury: yes/no
 - arson: yes/no
- aggression: instrumental/reactive
- aggression before/during/after psychosis
- involuntary index admission: yes/no
 - if yes:
 - RM: yes/no
 - IBS: yes/no
 - others (specify):

Appendix V Axis IV: Psychosocial and Environmental Problems

- Problems with primary support group
 - death of a family member
 - health problems in family
 - disruption of family by separation, divorce, or estrangement
 - removal from the home
 - remarriage of parent
 - sexual or physical abuse
 - parental overprotection
 - neglect of child
 - inadequate discipline
 - discord with siblings
 - birth of a sibling
 - + V61.10 partner relational problem
- Problems related to the social environment
 - death or loss of friend
 - inadequate social support
 - living alone
 - difficulty with acculturation
 - discrimination
 - adjustment to life-cycle transition (such as retirement)
- Educational problems
 - illiteracy
 - academic problems
 - discord with teachers or classmates
 - inadequate school environment
- Occupational problems
 - unemployment
 - threat of job loss
 - stressful work schedule
 - difficult work conditions
 - job dissatisfaction
 - job change

- discord with boss or co-workers
- Housing problems
 - homelessness
 - inadequate housing
 - unsafe neighbourhood
 - discord with neighbors or landlord
- Economic problems
 - extreme poverty
 - inadequate finances
 - insufficient welfare support
- Problems with access to health care services
 - inadequate health care services
 - transportation to health care facilities unavailable
 - inadequate health insurance
- Problems related to interaction with the legal system/crime
 - arrest
 - incarceration
 - litigation
 - victim of crime
- Other psychosocial and environmental problems
 - exposure to disasters, war, other hostilities
 - discord with nonfamily caregivers such as counsellors, social worker, or physician
 - unavailability of social service agencies

